

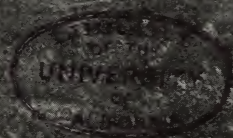
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Gleanings in Bee Culture



VOL. XXXIX NOV. 15, 1911 NO. 22

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Gleanings in Bee Culture

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Editorial

IN many localities in the North, especially at outyards, it is advisable to have the entrance slot of outdoor-wintered colonies not deeper than $\frac{3}{8}$, or, better, $\frac{1}{8}$ inch, to keep out field-mice. They will make bad work of the combs, and often so stir up the cluster that the bees in their disturbed condition freeze to death.

ELIMINATING ONE MEANS FOR THE SPREAD OF FOUL BROOD.

MOST of the queen-breeders of the country have agreed to boil the honey they use in making queen-cage candy. This is encouraging, for it will eliminate the possibility of spreading disease through this means. We will publish the list of the breeders who agree to boil, when it is more complete.

OUR COVER PICTURE.

THE statistician of the reclamation service at Washington is doing a good work in getting data before the public concerning the possibilities of newly developed land. The picture of H. N. Simmon's apiary in the Yuma Valley, Arizona, page 272, May 1, was from the reclamation service, as is also the striking picture of the Arizona apiary on our cover for this issue. This apiary, by the way, is in the Salt River Valley, the climate of which is vividly described by L. M. Brown, page 698. If an egg can be fried on a stone heated only by the sun, it is no wonder that a framework is necessary for shade. Bees should have no difficulty in ripening the honey in that kind of climate.

WINDBREAKS FOR BEES WINTERED OUTDOORS.

MR. ROBERT B. MCCAIN, and R. F. Holtermann, in this issue, emphasize the very great importance of having windbreaks for bees wintered outdoors. We are satisfied, from an experience covering about forty years, that, while a good windbreak is not absolutely an essential in outdoor wintering, yet it is a very important requisite. Usually an apiary can be well screened if it be located in the center of an orchard, or in a grove or next to a woods. A solid tight board fence is not necessary. A few low bushy trees or shrubs surrounding an apiary

will do very much to break the force of the wind.

HORSES HITCHED TO A WAGONLOAD OF HONEY AT THE END OF A LONG ROPE WHEN ROBBERS ARE BUSY.

WE wish to call attention particularly to the device mentioned by Louis H. Scholl, in "Bee-keeping in the Southwest," in this issue, page 682. Very often it is not safe to bring horses close to the bees, and it means considerable expense and loss of time to carry the honey from the honey-house to the wagon stationed at a safe distance. Some, in order to avoid all danger, leave the wagon some distance away and haul the honey to it on a wheelbarrow. Mr. Scholl's plan seems the best of any we have seen, for the rope can be long enough to allow the horses to be as far away as need be.

The only difficulty in the plan that we can see would be steering the wagon when the driver was alone; and if there were many obstructions or a curved road or track there might be some difficulty. However, even then we presume it would be possible for the driver walking a few feet ahead of the wagon-tongue to steer it without much trouble by pulling one way or the other on the rope, which, with judicious driving of the horses, might work all right.

FEEDING SYRUP LATE IN THE FALL WHEN THE WEATHER IS A LITTLE CHILLY.

IT is quite useless to feed a *cold* syrup when the temperature outside is down below 50° F., because the bees will rarely take it from the feeder unless the colony is very strong, and well housed; but when the syrup is fed as *hot* as the hand can be held in it, the bees will take it at once and empty the feeder.

We feed our outyard colonies hot syrup in this way: We take a cheap galvanized wash-tub and use it outdoors as our grandfathers used the old iron kettles for heating water. The tub, like the kettle, is leveled up on three or four stones of suitable size, and filled about a third full with water. A fire is built under the tub; and when the water is boiling, enough sugar is *gradually* stirred in till the tub is nearly

full. Before putting in the sugar, the fire under the tub should be raked out to avoid any possible danger of scorching the syrup or causing the tub to spring a leak. When the sugar is *all* dissolved, so that the syrup is clear, it may then be put into a large tea-kettle, from which it may be easily poured into the feeder on the hive.

The advantage of this arrangement is that *dry* sugar can be carried to the outyard or kept stored in a building. We obtained the idea of giving hot syrup in this way from the late W. Z. Hutchinson; and while we have referred to it before in these columns it will bear repeating.

THE USE OF HONEY IN COOKING; A FINE HOME-MADE HONEY-DRINK.

OUR new honey-recipe book is nearly ready for distribution. For several months we have had several good cooks testing the large number of recipes that we selected for use in the book from those sent us. This work has required considerable time, but it has not been without compensation, for we have been especially gratified in discovering so great a proportion of really very fine recipes in which honey is one of the principal ingredients. Even one having no sentiment regarding the use of honey, and therefore not prejudiced at all, can not help being enthusiastic in praise of some of the cakes and cookies baked.

We can not refrain from giving here one of the recipes which turned out surprisingly well. It is for making cereal coffee. We have been somewhat skeptical regarding the so-called coffees made from browned cereal, but our opinion in regard to this matter has entirely changed since tasting the coffee made by this recipe. Here it is, try it yourself.

1 cup honey (preferably dark honey); 1 egg; 2 quarts wheat bran. Beat the egg, add the honey, stirring together thoroughly, then stir in the bran, mixing it until there are no dry lumps of bran. Spread the mixture in a thin layer in a large dripping-pan, and place in a moderately hot oven to brown. Stir it frequently to prevent burning.

To make the coffee, use a *heaping* tablespoonful to a cup of water, and boil vigorously for at least ten minutes. Serve with rich cream.

This very simple recipe results in a drink that has a fine rich flavor, with none of that scorched bitter taste that so many cereal coffees have. Now, however much addicted you may be to the use of good coffee, just try the above recipe and see if you are not pleasantly surprised. It costs practically nothing, and is very little trouble to make.

BEE-RIPENED OR MAN-RIPENED HONEY; UN-RIPENED BUCKWHEAT HONEY AND BOILED SHIRTS.

OUR old friend Dan White, who has for years been persistently and consistently preaching the importance of letting all extracted honey ripen thoroughly on the hive, has an interesting and valuable article on the same subject in this issue, page 684. We remember the time quite well when friend

White stood more nearly alone than he does now in the advocacy of *bee*-ripened honey.

Some thirty years ago some of the (then) modern bee-keepers discovered that they could discard the antiquated uncapping-knife, because, forsooth, they could extract before sealing when the honey was more or less green, and finish the process of ripening artificially. While it is admitted that a fair grade of honey, before the cells are sealed, is sometimes produced in this way, yet experience over and over again seems to have proven that nature's ripened honey is superior in every way to that ripened by man. We are glad to assure Mr. White that nearly all honey-producers to-day stand with him.

We remember talking some years ago with a large producer of honey who claimed that his honey ripened before it was capped over—or at least enough so to enable him to finish the process of ripening in open tanks, after he had extracted it without the use of the knife. Not long afterward, we learned of an incident worth relating here, connected with an attempted sale of his honey. It seems that a commission man who had the sale of this honey, and a prospective buyer were going to attend a social function on a certain night. Both put on full-dress suits with low vests and white shirt-fronts. On the way over to the "function" they decided to stop at the commission store and examine some of the beautiful honey about which they had just been talking. Mr. Commission Man and the buyer approached one of the barrels, and proceeded to loosen the bung with a hatchet. Both men leaned over the barrel, when bang! the bung flew out with a loud report, and that delicious (?) buckwheat honey flew all over the white shirt-fronts of both men. It is needless to say that neither of them went out that night. The commission man was disgusted, and his friend the buyer was mad all over.

The bee-keeper who produced this lively honey, a few days later received a letter scoring him up and down for shipping fermented honey, and asking what to do with that sort of stuff, that was so hard on boiled shirts.

Moral.—All beginners and most professional bee-keepers should let their honey ripen thoroughly *on the hive*.

THE ADVANTAGE OF A HONEY-PUMP IN EXTRACTING; SOME FIGURES IN REGARD TO THE USE OF THE PUMP IN CONNECTION WITH A POWER-EXTRACTOR OUTFIT.

THE question has been asked more than once what the capacity is of small honey-pumps that can be run from the cross-shaft of a power extractor, the expense of such pump, power required, etc. We have had a great deal of difficulty in obtaining for our purpose a pump that would handle honey satisfactorily that was not too expensive. There are several rotary oil-pumps on the market, but not all of them are adapted for pumping honey, since honey is so much thicker

and heavier than most oils. However, we have at last found a pump that will average a gallon of thick cold honey a minute when running at a speed of a trifle over two hundred revolutions a minute. We attached the pump to the bottom of an extractor and belted it to a pulley on the extractor cross-shaft so that it would run whenever the extractor was running. So little power is required that no difference is noted in the running of the engine that drives the extractor; but at the same time we do not regard it as practical to attach a pump to a hand extractor. It is hard enough to turn the machine without the addition of a pump.

In some honey-houses, especially those that are located on a side hill, the honey may run by gravity direct from the extractor through the floor into a tank below, and this, of course, makes a very ideal arrangement. But in such rooms as are not adapted for the gravity plan the honey-pump is very satisfactory, the honey being easily elevated by means of a pipe to the top of the tank in the same room. It is certainly a very great convenience to have the extractor firmly anchored on the solid floor instead of having it elevated on a high box where it is not only unhandy to work around, but where the honey must be lifted by the pailful to the tank. By the Townsend plan, there is very little danger of running the pail over; but the operator has to wait until the proper amount has run out without ever taking his hand from the gate, and this consumes time. By the old plan of leaving the gate open and allowing the honey to run into a pail as fast as it is extracted, less time is consumed; but there is constant danger of running the pail over and losing a lot of good honey, besides valuable time.

BETTER SHIPPING-CASES FOR OUR COMB HONEY; AN INTERVIEW WITH A PRODUCER WHO SHIPS BY THE CARLOAD.

IN our department of Stray Straws in this issue there will be found a little discussion between Dr. C. C. Miller and ourselves on the question of wide or narrow glass, or better shipping-cases with solid wood front as well as back. While it is true that the producer should adopt better and stronger shipping-cases, it is equally true that that same producer is governed by the buyer. Said Mr. H. Trickey, of Reno, Nevada, who has been with us for a few days, "The buyers are in the habit of putting up a big kick because of the losses by breakage in shipment. Instead of raising a howl *after* the crop has been produced, for not using stronger cases, they should instruct the producer *a year ahead* as to the kind of cases they want him to use."

That's true. Why should not the buyers of honey get together and agree on some standards for shipping-cases which they will accept? If, for example, they will say they will pay one or two cents *more* for comb honey put up in a standard case, the comb-honey producer himself would be very short-

sighted if he did not adopt the better case, providing, of course, it did not actually cost more than the difference in price secured for the honey. It is, therefore, up to you, Mr. Buyer, as well as to the producer. Shall we let the comb-honey business go by default, or shall we reform our methods and cater to the trade of consumers who demand both comb and extracted? It is not too late to mend our ways.

If some of our producers would make a trip and see their honey unloaded, some of their individual theories and notions would be shattered instantly. They might be able on *future* shipments to save many times the cost of the trip. If adjustment has to be made, it can be much more satisfactorily arranged if the parties can see each other face to face and talk it over.

After we had written the foregoing we showed it to Mr. Trickey, and, after reading it, he said: "Besides the buyer, there is the supply-dealer and the manufacturer. The latter can do a great deal toward inducing producers to use the right sort of shipping-cases; and then if you fellows will urge in your catalogs the importance of having standard well-made shipping-cases, it will help materially to solve the problem."

"But," we said, "Mr. Trickey, the supply-manufacturers are already reducing the number of the sizes of their cases; and, if we are correctly informed, most of them will urge their customers to adopt standard sizes with corrugated paper in the cases, top and bottom."

"I do not know about corrugated paper on top," said Mr. Trickey. "I believe it may be all right to use it in the *bottom* of cases."

"There is another thing that the manufacturers ought to do, and that is, to print on the covers of all their shipping-cases, in plain large letters, *Comb honey; this side up; handle with care*. The average case is so made that, when honey is packed in it, no one but the bee-keeper himself knows whether the case is right side up or not. When upside down the leakage will be worse; and when the case is opened up, by removing the bottom instead of the top the whole case of sections shows off to great disadvantage to a prospective buyer."

It is important also that there be a uniform weight or uniform tare. When the cases are of different weight in a car of honey, the consignee or buyer is pretty sure to charge up against the producer the tare of the *heaviest* cases that he finds in the whole lot of honey; and too often the producer is compelled to take what he can get or else try to fight it out at long range."

EIGHT-FRAME V. TEN-FRAME HIVES.

For his locality Mr. Trickey favors the eight-frame hive. "I say locality," said he, "because I find that my smaller hives do better—that is to say, I have more honey in proportion to the amount of brood than I did in the large hives. In another locality the result might be very different."

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

CORK-DUST, says *Deutsche Bzcht.*, 159, is the worst thing possible for winter packing. It absorbs very little, but allows too free passage, and what little moisture it absorbs favors mold.

FEARRER F. GERSTUNG, *Deutsche Bzcht.*, p. 150, says that bees take up the different lines of work according to age in the following order: Feeding the queen; warming and preparing brood-cells; brooding the eggs; feeding larvæ; sealing brood; building comb (probably together with predigestion of food-stuff); ventilation and defense; gathering pollen; gathering nectar; carrying water.

MORE TWO-INCH glass than three-inch is sold, page 646. Naturally. To save a cent apiece on glass the majority will take the poorer case. If one-inch glass were listed, it would find purchasers. But, as always, the minority of better judgment prefer to pay the higher price for the better article. Can there be any reason except that the wider glass makes a better show? If wider glass makes a better show in single-tier cases, why not in double-tier? [We are both wrong, doctor. We were mistaken when we stated that there was more two-inch than three-inch glass used. It is the other way. You were, therefore, wrong in thinking that the cost had any thing to do with the proposition. In our opinion the two-inch glass shows off the honey as well as the three-inch. The question of looks, it seems to us, is a matter of slight importance, compared with the strength of the case. See answer to the Wesley Foster Straw below.—ED.]

WESLEY FOSTER says, p. 647, "It is unnecessary to display as much of the goods in a double tier as in a single tier." Why? Isn't the more good surface shown the better? He says, "People can use their imagination a little if they can not see all the comb." O Wesley! If the imagination fills out, so that two-inch glass is as good as three-inch, then why isn't one-inch as good as two-inch? But you are quite right in objecting to glass so wide that it "shows the unsealed cells and pop-holes too prominently." I don't think it should show them at all. Does three-inch glass do so? In a 4¼ section the comb surface is 4 inches deep. A three-inch glass exposes 2¾ inches, leaving 1¼ inches covered with wood—½ at top and ¾ at bottom. If ¾ does not cover your unsealed cells and pop-holes, then three-inch glass is too wide for you. But I would not consider such honey fit to ship. Neither would you if you'd actually look at the honey in the case and not depend on "imagination." I've shipped many a ton of sections, both in single-tier and double-tier cases. I never ordered a piece of glass less than three inches, so far as I can remember; and I think unsealed cells and pop-holes were always sufficiently covered.

The finer the show of section honey, the greater the total output. *Please* don't discourage its sale by making a poorer show, just for the sake of saving a cent on each piece of glass. [We favor the two-inch glass mainly because it permits of a stronger case. In fact, we have about come to the conclusion that there should be no glass in the case, either front or rear. The front and back should be marked "Fragile," and "Handle with care." If no glass of any kind is used, there will be no temptation to "face" the cases. It takes but a moment to pry up the cover, then the sections can be shown far more satisfactorily than when surface indications are taken through a glass-front case.

Say, if you could see some of the broken-down shipments of cases that we see, even when they come from *up-to-date bee-keepers*, you would come to the conclusion that you did not want any glass at all. The other day we examined a large shipment of cases that were glazed, front and rear; and such a mess as it was! A large number of the combs were broken. Had this comb honey been put up in cases having one solid back, or, better still, solid back and front of wood, there would have been but very little breakage. The fact is, buyers are becoming disgusted with the comb-honey business because of the great amount of breakage in shipment. We must put the mere question of looks in the background and adopt a case that will be stronger and better than those formerly used, or the comb-honey business will be ruined. We talked with a honey merchant the other day. Said he, with some emphasis in his tones, "I am done buying comb honey. There is too much breakage and too much trouble in adjustments. I shall handle extracted hereafter," and this is not an isolated case by any means. Comb-honey producers are pursuing a wrong policy. *Wide* glass is a step in the *wrong* direction. Better use *narrow* glass or no glass at all. When a case has a solid wood front and back it is very much stronger than one with glass front. Unless comb-honey producers wake up to the importance of better cases and less breakage their business will be ruined beyond redemption. Already there is a strong exodus from comb to extracted. This is all wrong. Why should we spoil an important department in our business? See editorial on this question elsewhere.—ED.]

"AN AVERAGE yield per colony, well located, should be at least 100 lbs. of extracted honey," says Louis Scholl, p. 617. That leaves the question still, "How well located must a colony be to do that?" and the more important question, "What is an average yield in an average locality?" I suspect it falls below 75 lbs. extracted honey,

but I wish we could have an authoritative answer. [This question depends a good deal on locality and the number of bees in it. In many places in the South, Mr. Scholl's estimate is not out of the way; but in most localities of the North, if we take one year with another, and strike an average, from ten years, 100 lbs. per colony would be too high, even for extracted. Possibly 35 lbs. of comb and 75 of extracted would be nearer the correct figures. Then there is another factor that must be taken into consideration. A backlotter who has, say, only a dozen colonies, with no other bees in the vicinity for two or three miles, might secure an average of 150 lbs. of extracted and 75 lbs. of comb honey. He might, some years, get from some individual colonies 250 lbs. of extracted and 150 lbs. of comb honey. Then he might have a year when his bees would barely get a living.]

The larger the number of bees that one keeps, the smaller will be the yield per colony unless he distributes them around in out-apiaries, far enough apart, so that each colony will have, we will say, "good picking." One of the most extensive producers of honey in the United States once told us that his average of comb honey did not exceed 35 lbs. per colony, and his extracted not over 60. His bees were located in one of the northern States; and yet we have known of some extensive producers located in tropical climates whose averages would run along pretty evenly at 200 lbs. per colony. These we may say, however, were exceptional.—ED.]

MR. EDITOR, you ask, p. 614, whether that fruit-eating joke is on A. I. Root or myself. Both. He started it by saying he was going without supper, and then innocently revealing that he was eating apples at supper-time. But there's more than a joke in it, and it's of such immense importance that it deserves a whole page instead of a Straw. Much is said of the wholesomeness of fruit. I arise to remark that, to a great many people, it does more harm than good. They eat a full meal—all they care for—and then add the fruit. That overloads, and does harm. When A. I. Root eats nothing but apples at a meal, there's little danger he'll overeat. If fruit is to be eaten at the same meal with other things, let the fruit come first. "Oh! but if you eat apples before dinner you'll spoil your dinner." Well, better spoil your dinner that way than to spoil your stomach and your temper. Besides, it's not spoiling your dinner to make fruit the first part of it. The fashion is to eat breakfast-melons at the first of the meal, and no one complains that it spoils the breakfast. Follow the same fashion, and let all fruit come first at a meal. The same with nuts. Last winter, many days I ate about ten blackwalnuts before dinner, and it worked well. After dinner they would have done harm. More fruit should be eaten, and more nuts; but they should not come after a full meal.

[One thing we found in our own experience was very important; and that is, not to mix two kinds of diet—that is to say, a large quantity of fruit should not be eaten with meat. They do not go together any better than mince pie. If one finds it to his advantage to eat meat because it is digested in the stomach, he must not mix a lot of other food with it at the same meal. A fruit diet should be exclusively of fruit, and a meat diet almost exclusively of meat. Don't you remember, doctor, how you proved to us, years ago, that you could eat clear meat at one meal and clear fruit another meal, without any discomfort? We have since tried it time and time again to our own satisfaction.—ED.]

MR. EDITOR, speaking of the recurrence of European foul brood here, you raise the question whether I have Italianized. Before answering that, let me say that I entirely agree with you and others in thinking that the correct rule is to Italianize if you want to get rid of European foul brood. Italians are more vigorous than the blacks of this country, consequently better honey-gatherers, and the same vigor that makes them better honey-gatherers makes them better at resisting disease. Now to your question. I have introduced in the past few years some 20 queens of the best Italian stock I thought I could find in this country, and this year I imported three queens direct from Italy. I have bees of the yellowest kind down to those that show no yellow color; but I think the yellow largely predominates. I have not discovered that the yellow bees are more nearly immune than the darker ones. Still, I may be mistaken, as I can give no positive figures. I know that No. 99, pure Italian, though not affected last year, was affected this year. Let me hasten, however, to say that my case is exceptional. For years, without reference to color, I bred from the best honey-gatherers, and secured hybrids that are hustlers. I have not been able to get any Italians that will equal them in storing. Being so vigorous at storing, why should they not be vigorous at resisting disease? But while they are storers, they are also stingers. I have been Italianizing, not to get better storers, not to fight disease, but to get better-natured bees. This does not prove that hybrids are better than Italians. It proves that breeding from the best will give better bees. If I had stuck to pure Italians, always breeding from the best, I might now have Italians better than my present hybrids, and not so cross. So if you want to fight European foul brood, Italianize. [We agree with you that, if you had used the same care in improving a pure Italian stock, you would have secured as good or even a better strain of bees for gathering honey than you did from your best hybrids. And it would probably be true that, if you had only pure Italians, you would to-day be almost immune to the attacks of European foul brood. The experience of others points this way very strongly.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Stirring honey undoubtedly will make it candy more quickly; but the best quality can be secured only by using well-ripened honey. See page 550, Sept. 15.

Dr. Miller refers, page 516, Sept. 1, to bees tearing down worker comb and building drone comb. Since this matter came up I have spoken to a number of bee-keepers who seem to think it a very common occurrence.

Early this year it was thought there would be an unusual crop of honey in the clover belt; but September reports show the crop of clover honey the lightest for many years. This indicates how uncertain the honey-flow is, and how little one can foretell what the crop will be.

With the number of GLEANINGS for Sept. 1, Mr. Baldwin finished his series of articles on "Bee-keeping in Florida," which has given such a clear idea of conditions in that land of flowers. Few articles are more fascinating than those regarding other sections of our broad country, for the good things are not all in one place. Every section has its good and bad points.

On page 534, Sept. 1, O. B. Metcalf gives some objections to a gravity strainer for thick honey. We have found it almost impossible to strain very thick honey through any fine strainer. I have wondered whether the strainer could not be enclosed in a water-jacket and the temperature raised to 125° by heat from a stove, or by steam, and thus make straining a simpler process.

Page 552, Sept. 15, our genial friend Doolittle advises keeping bees better rather than to buy more, and tilling a small farm well rather than to enlarge it. Good advice, surely, and it reminds me of a sturdy little German whom I met a few weeks ago in the southwestern part of our State. He has supported his family, and secured a competence on a twenty-acre farm. I was congratulating him on the productiveness of his farm when he laughed heartily, and said the man he bought it of could not make a living on it.

That letter by J. E. Hand, page 515, Sept. 1, on outdoor feeding, with notes by the editor, is a good step in advance of any former facts along this line. It certainly is much less work to feed in the open than to each individual colony. The possibilities seem to warrant outdoor feeding in spring to get bees ready for the clover harvest, especially between fruit bloom and clover. The feeding of dilute sugar syrup (or shall we call it sugar water?) in the open,

seems to offer great possibilities. Already it seems to be of great value in queen-rearing in the prevention of robbing when handling bees; in keeping bees away from fairgrounds, and for stimulating brood-rearing. I have found, however, that a good way to keep bees away from fairgrounds is to kill the first bees that come. Only a few scattering bees find it first; and if these are disposed of, not enough will come later to make any serious trouble.

Mr. Doolittle advises, page 454, Aug. 1, a temperature between 80 and 90 degrees, never below 70, for keeping comb honey perfectly, which is, no doubt, all right, but I fear it is not very practical; for how many bee-keepers are there who have such a place during winter? Perhaps one in five hundred. For the benefit of the other four hundred and ninety-nine let me say that well-ripened clover comb honey has been kept in places far different from and far cooler than Mr. Doolittle suggests. In fact, we have recently bought several such lots of honey, most of it wintered in a chamber of an ordinary dwelling-house, and we found it in fine condition. Some of it, however, which had been wintered in an out-building, where the temperature must have been below zero many times, was somewhat cracked. Most of this honey was free from granulation, and looked as though but recently taken from the hive.

That article by Wesley Foster, page 456, Aug. 1, "Let's be Intelligently Honest," is decidedly good except the quotation from the *Rural New-Yorker*, which, as I happen to know, is rather misleading. The reason for using barrels for apples here in New England is not for the purpose of putting a bushel of poor-quality fruit in the center of the barrel, but rather because it has been the custom for a long time to use barrels, probably because it is cheaper, and requires less work. I heard an extensive apple-grower from a neighboring town say last fall, when asked why he did not put up his apples in boxes, that he preferred barrels, and should continue to use them as long as he could get from seven to ten dollars a barrel for his No. 1 Greenings and from ten to fifteen dollars a barrel for the same grade of Spies, and he had between two and three thousand barrels of this grade of Greenings alone the previous fall, and he can't supply the demand for his apples. I could name a good many fruit-growers in this locality who get fancy prices for apples in barrels. Apples from the Pacific coast in boxes? Yes, that is the best for them, for their beautiful color is their best asset; but when it comes to flavor, Wesley, you should eat some of our Vermont apples, and then you would say that "I have boasted less than I should."

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

There are said to be 900 bee-keepers in Los Angeles Co.

Smoke may not be necessary, according to the new idea; but, just the same, some of us in California seem to have a great amount of confidence in a well-filled smoker, and are not too particular which end of the bee it strikes, if it keeps the business end at a safe distance.

Mr. Frank E. France, page 625, Oct. 15, speaking of the black or button sage, says: "Blossoms commence to come out on the outer edge of the bunch of buds." This is a common idea, even with some of our natives, but is not correct, the inner circle blooming first. See cut, page 527, Sept. 1.

I am just in receipt of a bulletin issued from the State Agricultural Experiment Station at Berkely, entitled "Honey-plants of California." Every bee-keeper in the State should have a copy of this work. It is a credit to our experiment station, and places bee-keeping on a footing with other industries of the State. Though somewhat tardy, we are glad to see our industry recognized.

I was once an enthusiastic believer in and advocate of the two-queens-to-a-hive theory, for early spring breeding, but am now becoming convinced that it is really a theory, and not practical, inasmuch as a queen lays during the early spring largely according to the amount of bees available to cover and care for brood. If the force were divided and another queen supplied they would be able to cover actually less brood space for a time than with the one queen and all of the bees in one chamber.

In discussing size of hives, page 586, Mr. Metcalfe advises a thorough trial before discarding the eight-frame size. I have experimented to some extent with the 8, 10, and 12 frame, and my conclusions were in favor of a 12 over an 8. Considering all points, the 10-frame size has more desirable features than either the 8 or 12; meets the need of the average colony, and should be made the standard for both comb and extracted production. A standard size would save many a sacrifice sale where a bee-keeper desired to dispose of his holdings if the hives conformed to a size generally in use. Counting out the two outside frames, which are largely used for honey and pollen stores, the eight-frame gives only a six-frame brood-space, which is not sufficient, especially during the honey-flow, when bees are wearing out rapidly in the field. The ten-frame is more adequate in this respect; and were I to be confined to a single brood-chamber I would choose the twelve-frame over either for this

locality. Mr. Metcalfe's suggestion, that both upper and lower chambers be used for early brood-rearing, is an excellent argument for the eight-frame size, but equally so for the ten. Many apiaries run for comb honey do not carry extracting-combs, however, nor do they have facilities for extracting, so we must depend on a single brood-chamber. For this I would choose a twelve over either the eight or ten frame size, with the super narrower than the brood-chamber, enabling a strong force of bees to occupy a smaller space, which is desirable for comb-building and rapid filling. However, as the ten-frame is fast becoming the standard I am satisfied to let it remain so, without spending much on experiments.

My intention of visiting the vicinity of Covina and Monrovia, where European foul brood (black brood) was said to exist, was mentioned in my last notes. In company with Mr. Heber Wagoner and M. J. Meeker I went by auto to Covina, on invitation of Mr. J. D. Bixby, of that place. We reached Mr. Bixby's home about 10 A.M., and were soon on our way to an apiary of which he had charge. After arriving we were equipped with veil and smoker for business. It took only a few minutes to dispel all previous doubts about the existence of the disease in that locality. We opened a number of hives, Mr. Bixby carefully explaining the various stages of the disease, giving us as fine a talk as one could ask for. We spent a full hour taking in this illustrated lecture, all feeling fortunate in having a person so well informed on the subject to point out the features of the disease. Those who live in reach of Mr. Bixby could well afford to visit him and pay for the time and trouble it takes to acquaint them with the disease and its characteristics; for in my opinion we are confronting a condition that is now not only in its incipency but one that we shall have to fight in earnest sooner or later. Those who live in this infected area should begin at once by Italianizing as rapidly as possible, there being no question that it spreads rapidly and depletes a colony faster than the American form.

Mr. Bixby having shown us colonies that were marked "light case" four weeks before that were then very bad. Should the suggested theories of Mr. Ralph Benton (*Bee-keepers' Review*, November, 1910) prove true, that the disease may travel with the prevailing wind, we in San Bernardino and Riverside counties may expect it to reach us among the first. There are at least three in this county who now know the disease, and do not propose to be caught napping, though there will doubtless be heavy losses when it strikes, especially among the "near" bee-keepers, some of whom have not seen the interior of their brood-chambers for two years.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

It will pay to feed those colonies that are short of stores, even if honey is not at hand, and 8-cent sugar has to be bought to do it with. Don't save at the wrong end. A few dollars well expended in feeding now may mean a return of tens of dollars next year when the honey-flows come again.



Our prospects for next season begin in the fall; and if abundant rains continue as they have in many parts of Texas within the last month, the season of 1912 promises to be a good one. Some of us are naturally expecting a bumper year after two shorter-crop years than we are used to, as we are still staunch believers in "three bad years do not follow each other in succession."



By October 1, practically the entire Texas honey crop was disposed of, and buyers offered good prices. The few scattered producers who still had some honey had no trouble to get it off their hands. This was particularly true of bulk comb honey, the standard honey product of Texas. The consequence is, that some of the larger producers received orders for such, amounting to hundreds of cases above their annual output.



Foul-brood samples, and samples of comb infected with any other disease or trouble of any kind should never be sent in any thing but a stout and secure box, and this well wrapped with strong paper, and well tied, to prevent exposure of the contents. On several occasions, such samples of comb were sent to us in very frail paper packages, or enclosed in only a single paper wrapper from which the diseased comb was exposed with danger of spreading the disease far and wide, and into our own apiaries. We feel as though we could never forgive the person guilty of infecting our own or other apiaries by such gross carelessness and negligence; hence we hope that hereafter such combs of this nature as are sent us will be securely enclosed in a proper box made either of wood or tin, and then wrapped properly before sending them away. This is important.



KEEPING UP THE PRICES.

The bee-keeper can do a good deal to keep up the prices of honey. This we have proven repeatedly to our own satisfaction in our experience of many years in selling hundreds of tons of honey. We have at all times aimed to keep prices a little in advance of "the other fellow," and we are confident that we have made some progress, not only toward keeping up the prices here in Texas but in bringing them up to a higher notch than honey prices have been for the last fifteen

years. We are glad to note that there are several others who are doing the very same thing, and the result has been that each year the prices have gradually crept up half a cent or more a pound. This is one way of getting for our honey what is due us, and our Texas bee-keepers are not complaining nearly as much about low prices of honey as is the case in many other parts of the country.



A HANDY APPLIANCE.

Nothing is more disagreeable than to have a load of honey near an apiary ready for the team to be hitched to the wagon, but the entire load completely in possession of thousands of infuriated robber bees that can not be driven back by smoke or any thing else. After having several experiences along this line, some of which very nearly ended seriously, we contrived a method of drawing the loaded wagon some distance from the yard by means of a long stout rope. This is arranged with a strong hook at one end, so that it can be quickly hooked to the end of the wagon-tongue, while at the other end a set of light doubletrees and singletrees are fastened to which the horses are temporarily hitched. This outfit is always carried along on the wagon so that it can be used whenever needed. When the wagon is once away from the yard the team is hitched to it, and there is no more trouble. We hope that others will try this easily-made contrivance which we have found indispensable.



Perforated zinc has advanced, but the price does not concern us, for we do not use zinc excluders. We know that opinions as to the use of queen-excluders differ; but our own twenty years of extensive experience, and that of many others, have proven that queen-excluders can be dispensed with altogether when colonies are properly manipulated. In this management the brood-nests are placed in such ideal condition that there is no desire on the part of the queen to leave them and to go into parts of the hives where they are not wanted. That this can be done we know from the fact that we have accomplished it for more than fifteen years. We want it understood that we are not making these claims without good grounds, for we have produced large crops of honey year after year, during which hundreds of supers have been removed from the hives, entirely free from brood, making the use of excluders absolutely unnecessary.

We save, therefore, not only the extra expense of first cost of these, but the handling of over a thousand excluders. Since we manipulate our brood-nests several times in a season, these excluders would have to be handled as many times also; but, enough said.

Conversations with Doolittle

At Borodino, New York

THE BEST HIVE.

A correspondent writes, "Not long ago I heard a man advertising a hive which he claimed was superior to any other in general use. He tried to persuade me that, if I would purchase the right to make this hive and use it, the results from my bees would be doubled. I have wondered since whether you old specialists use a particular make of hive, and from so doing secure your large yields. What would you advise in the matter?"

I would say at the outset, that, while a good hive is important, the man who manages affairs well has much more to do with success or failure in bee-keeping. At present there is about one man in one hundred who is trying, by some hook or crook, other than producing wealth for himself, to get into his possession a certain amount of the wealth produced by the other ninety-nine, and this "best hive in the world" man can be numbered among these. He would make it appear that one using his hive will have honey to sell and give away.

The purchaser is told that all he has to do is to leave these hives with some, farmer bee-keeper who will have swarms in them at \$1.00 each, after which the hive and bees can be taken home and deposited in some out-of-the-way place, where the bees will not sting the children. The wily agent adds that the bees will take care of themselves until fall, when enough surplus will be found for the family use for a year, or, if not used at home, honey that will sell for more than enough to pay for both hive and swarm. Is it any wonder that there are so many failures in bee-keeping, when so many are persuaded to start in this manner? No, no! It is not in the best hive, but, rather, the bee-keeper behind the hive, who leaves no "stone unturned" for the attainment of success. I doubt whether there is any thing better, all things considered, than the hive of Langstroth dimensions. That this hive and frames of Langstroth dimensions are used by the majority of our most practical bee-keepers is a great recommendation in their favor.

Successful apiculture includes work with and a love for bees; for the person with brains enough to secure a thorough knowledge of his location will put the hive to its test by insuring for the colony inside the proper conditions for securing a maximum number of bees at the time the flora of that particular location yields a surplus secretion of nectar. A good hive in the hands of such shows to the world that there is both pleasure and profit in the bee business, even at the present low prices of honey, compared with most of the other commodities of life. Such a person will have his bees in readiness for the honey harvest when it comes, and will do every thing at just the right time to secure the best results.

One of the questions which often comes to me is this: "What advantages have the hives of the present over the box hives used by our fathers?" Many, in every way, in the hands of a skillful apiarist, who uses all of the improvements to secure the best results; but none at all with the person who takes no advantage of the benefits which the movable frame, the extractor, sections, etc., bring within his reach. What are the movable frames good for if they are never taken from the hive? if the bee-keeper never looks for the queen to know whether she keeps the combs well supplied with eggs at the right time, so that the progeny may take advantage of the harvest? if the welfare of the colonies by the way of seeing that they have stores for winter and early spring is never considered? if swarms are allowed to issue in the good old way? if by the superseding of inferior queens with those from the most improved stock that can be obtained is overlooked? And yet I find many persons using movable-frame hives who do not open them once a year, who wonder why they do not succeed as well as the specialist who takes advantage of all of these things.

From the above I do not want it understood that a bee-keeper should continually overhaul his hives, in season and out of season. What I mean is, that when a gain is to be made by looking inside a hive, do it, and at just the time it is needed. Look after the stores in the spring before any colony restricts brood-rearing through shortness of food supply. Where any colony is discovered with a queen that does not keep up her brood to the necessary standard for a harvest from white clover or basswood, mark that hive; and as soon as the harvest is over, supersede her with one from the very best colony. Don't try to supersede her at a time when it will make a break in the work of the field bees, when the harvest is on, for continuous brood from an average or even poor queen is better than a break of a week or so with no brood at all. Put on the sections at just the right time, according to the honey harvest and the strength of the colony. Make swarms at the proper time, or work for their prevention through knowledge of the time when each colony is ready. All of these details are more conducive to success than is the hive—the hive being the medium through which one is able to bring the bees to that point where they will produce the best results.

INTENSIVE FARMING.

They used to have a farming rule
Of forty acres and a mule.

Results were won by later men
With forty square feet and a hen.

And nowadays success we see
With forty inches and a bee.

—Wasp.

General Correspondence

CONSTRUCTIVE ADVERTISING.

Getting the Good Will of the Purchasers, and Convincing them of the Superior Quality of Your Products.

BY DAN WHITE.

[The writer of this article is an experienced honey-salesman as well as producer, and what he has to say is based upon fact. Notice that *constructive* advertising, for the future, makes possible the disposal of a larger and larger output each year with an expenditure of practically no greater effort than at first.—ED.]

The word "progressive," used by E. G. Hand, p. 784, Dec. 15, 1910, is all right. Don't you see that this progressive advertising, if properly attended to, will induce thousands of people to sample honey? Mr. Hand's stunts and advice on how to advertise are sound. Let me quote the wording of one of his advertisements: "Honey from my apiary has been produced and put up in the most approved and careful manner. Its strong point is *quality*." How true it is that the masses, these days, are looking for the very best quality in every thing in the line of food! This alone should convince every producer of extracted honey of his duty to supply customers with so good a quality that they will not only continue to be buyers but will tell their friends about it. Their children will, at the same time, be educated to eat honey, and as time goes on it will prove the true way to do everlasting advertising.

About forty years ago the few colonies of bees I had were on Langstroth combs. I want to relate my first extracting experience. I had heard enough about the business to know that some sort of whirligig threw the honey out of the combs; so I tied a long rope to a rafter in the barn, procured a comb just filled with new honey, fastened it in an upright position in a good-sized tin pail, then tied the handle of the pail to the end of the rope and proceeded to twist the rope well. I then let the pail begin to whirl. Around it started, and I believe the honey came out of that comb from both sides at the same time. Anyway, it came out of all sides of the pail at the same time. I was driven out of the barn. It was thin honey; and, thinking of it now, I am glad I lost it.

Very soon after this I bought a new Novice extractor; and, just as everybody was doing, I started in by going through the brood-combs and letting the new extractor take out some sweet stuff mixed with larvæ in all stages (it's a wonder we strained it, but we did). Somebody gave it the name of "honey," and labeled it "*Pure*." After two or three years of experience, without hearing a good word for my honey, and with few purchasers a second time, I said to myself, "I don't like this honey myself. Nearly everybody has tasted good comb honey, and can't be fooled with such stuff." I began to feel ashamed of myself, and

finally decided that selling thin unripe honey was poor policy. Then I was far from doing as I would wish to be done by, having helped to give extracted honey an everlasting reputation that would be handed down from generation to generation. I resolved to get a supply of surplus combs and pile them up over the bees until the honey season was over, then let the bees take care of it until it was just as good as time could make it. The honey was left until October; and when it was out of the combs, and ready for market, I knew I had honey of quality. There was about 4000 pounds to dispose of, but I started out with plenty of confidence. When I met those who had bought of me before, and still had some on hand, my proposition was to weigh what was left, in exchange for an equal amount of new honey. As time went on, realization was beyond anticipation; and in two or three years I was an extracted-honey crank.

As the trade increased, people began to come to the house for honey, and mail orders, too, began to reach me; so it was evident that the days for peddling my honey were about over. I fancied I would some day be a second Father Langstroth. In my anxiety to reform the whole extracting fraternity I wrote an article for GLEANINGS, which was printed. Some of our most able writers and leading apiarists came back at this very article in a way that made me know better than to do any more writing; but I had the satisfaction of feeling that I had been defeated in the right.

Fifteen years later, when I wrote another article, the sentiment had begun to change, as many prominent bee-keepers were beginning to favor putting nothing but the best quality on the market. Now, a large share of those who advertise honey for sale are particular to say, "Thoroughly ripened on the hives by the bees." The words "ripened honey" are becoming fashionable.

This is progression in the right way; but the coveted harbor is still a long way off.

What is successful advertising? It matters not what industry, isn't it the confidence of the public that must be secured before the desired results can be attained? Think of the thousands of great industrial plants that now cover acres of ground, that, years ago, started in two-story buildings! Have they made this enormous growth without judicious advertising and careful management of the sales end of their business? Are they not continually looking after customers, and especially after prospective consumers of their product? Imagine the great field of prospective honey-consumers. What would be the result if every producer of honey in the United States would individually, this year, advertise in the local and county newspapers and would start a campaign of education to prove to the masses that there is more nourishment in a pound of honey than there is in a pound of

meat, and that, if they are looking after cheaper living, they must certainly include honey—one of the most essential on the list?

Short articles written for these papers, that will be printed gratuitously, telling about the management of bees, will interest the readers. At the same time, mention of the food value of honey could be made.

Any bee-keeper who can spend a week or two peddling honey can make expenses, and can, at the same time, meet a few hundred people to whom he can talk in a way that will result in good customers in the future. Stop at every house. Make a sale every time if possible; and if they refuse to buy, leave a generous sample, so that the whole family will get a taste of it. Mention the extra quality of your honey, and tell them that they can always depend on getting it from you. Speak of how thin it is when the bees first take it into the hive, but that you never extract it until it is perfectly ripe. Explain how it candies in cold weather, and how to liquefy it. Can't you see the good work that can be done along this line? Fifty pounds of honey given away in samples will create confidence and customers, and result in the cheapest and best kind of advertising. Much can be accomplished by educating customers to buy extracted honey by the gallon, as they regard it as a luxury when purchasing it in quart bottles, one or two at a time.

For fifteen years my product has been 3000 to 4000 pounds of honey a season. During this time it has been called for, and I have simply filled my orders, selling much of it in gallon cans. For two seasons a large part was sold in Akin honey-bags, in 2½ and 5 pound packages. My customers took it readily. It was not only satisfactory, but surprising to many to see honey in paper bags without showing a drop of liquid, and solid as a rock; this proved the nature of perfectly ripened honey. But I went back to gallon cans. Why? because some customers were inclined to take only 5 pounds while they would have bought 10 or 12 pounds if put up in gallon cans. You can see what I think of small packages.

Past experience, and knowledge of the amount of inferior extracted honey that has been before the people, has driven me to extremes—so much so that I have never bought a pound of honey to supply my customers in case of a season's failure. Certainly there are plenty of honey-producers just as particular along this line as I am.

New London, O.

THE BEE-KEEPER'S WINTER WORK.

Cold Weather the Best Time for Moving.

BY ROBERT B. M'CAIN.

The writer recently received a letter from a brother bee-keeper asking what he could do with his bees in the winter time. Would it be safe for him to open the hives to look into the clusters in order to ascertain the

condition of the food supply, etc.? Such questions suggest themselves to all bee-keepers who are really interested in their work with the bees; and these questions recur again and again as they sit by the fire during the long winter evenings and wonder how it fares with the busy little workers that are now so silent and inactive in their winter nests.

The answer that was given to this particular inquirer was that there is very little that one can safely do *with* the bees during the winter months; but there is a great deal that one may do *for* them. Though it is trying on the nerves to restrain the impulse to open the hives and take a look at the bees on a bright warm winter day when they are flying in great numbers, the probability is that they will be injured rather than helped by thus disturbing their household affairs.

One thing that one may and should do for his bees in the winter months is to look carefully after the protection of the hives from the cold winds. If the hives are not sheltered by buildings or a tight board fence on the north and west, something ought to be done. Some old boards placed so as to break the force of the winds will help wonderfully; and if the hives have a tendency to leak, a covering of some sort that will keep out water should be put over them. Perhaps there is nothing better than tar paper for this purpose. Care should be taken not to bank straw or leaves about the hives in such a way as to hold moisture. If these materials are used, they should be protected from the rain and snow so as to remain perfectly dry.

And then one may change the location of the apiary in the winter time better than at any other time. If for any reason it is desirable to make a change of this kind, a new location should be sought and carefully prepared before any thing is done to the bees. Having chosen the site, and having placed the hive-stands in position, a day should be set for the work of moving the bees. If the distance is more than three miles the bees may be stopped in the hive, and moved at any time without danger of their returning; but if they are moved only a short distance, a time should be chosen after the bees have been confined to the hive by the cold for a week or ten days at least. The hive-entrances should be carefully stopped with wire cloth the evening before the bees are to be moved.

No better method of moving bees has ever been invented than the old-fashioned way of carrying the hives in the hands. If they are too heavy for one person, some way can be devised for two men to carry a hive between them. The next best method is to use a sled on a smooth track in the snow. A wheelbarrow should not be used for this work, as it is almost impossible to avoid violent shaking of the bees, and even breaking the brittle combs in the cold. When the distance is too great to move the bees by hand or even with a hand-sled, then employ a bob-sled, if possible. By all means avoid using a wagon with out springs.

If the apiary is suitably located, and the

bees properly protected, there is still much that may and ought to be done in the winter months in order to insure a successful summer's work. Hives should be carefully prepared against swarming time. If the bee-keeper intends to increase the number of his colonies during the year he should purchase and prepare the hives in the winter time. When swarming time comes it is usually a busy time for men as well as for bees, and it will mean a great deal in time and money if the bee-keeper has all his hives and supers in readiness for the bees when they need them. This is true of all the mechanical equipment of bee-keeping. The best time to do the work of preparation is when the bees are quietly sleeping in their winter nest.

Now a final word about the bee-keeper himself. No one can hope to succeed with bees without information in regard to the theory and practice of bee-keeping. Books, and papers also, on the subject of bee-keeping, should be read, and the information obtained carefully considered with a view to the improvement of the work. The long winter evenings are well adapted to this work of self-instruction. And it is one of the most delightful pursuits of the bee-keeper's life to dream and plan for his faithful little workers. They are in many respects the most satisfactory of all his helpers. They do not need to be driven to their task. All summer long they work ceaselessly whenever there is any thing for them to do, and they never strike for higher wages.

The bee-keeper's dreams do not all come true. Sometimes he has a rude awakening; but as a rule the best and most successful bee-keeper is the one who does the most toward self-instruction by reading and study—the one who plans and makes the most thorough preparation for the summer's work in the winter time when he has more leisure and the bees are quiet.

Oswego, Ill.

YOUNG BEES CARRIED OUT BECAUSE CRIP- PLED BY MOTH-WORMS.

How to Get Rid of Them.

BY DR. L. A. SIMMON.

Sept. 15, p. 571, Mr. J. I. Lutes speaks of a very common trouble, viz., "old bees killing off young bees." I think that, if he will examine his brood-combs carefully, he will find them infested with moth-worm, for the mode of attack of the moth-worm, and the habit of bees in relation to their presence in the hive, are not always understood. For this reason there is a great deal of brood destroyed by them unobserved.

The ovules of the miller are deposited in the cells, or carried by the bees in going in and out, are sealed over, and hatch coincidentally with the bees. The young worms feed on the pap of the larvæ; and as they grow larger they burrow and push their way from cell to cell under the capping of the

brood, forming elevated lines that may be seen crossing the surface of the capped brood. These lines vary in diameter from $\frac{1}{16}$ to $\frac{3}{32}$ of an inch, and constitute the runways of the worms. There are two important points to remember—first, that bees never attack the moth-worm until it is seen; second, moth-worms instinctively remain secreted behind the cappings of the brood until they reach full development and are ready for the last transformation. They then emerge, make excursions about the hive in search of a crack, depression, or hole, where they spin their silken cocoon. It is then the bees attack them and carry them out. But all the damage they can do is done.

Bees will cluster over dozens of moth-worms secreted in these runways, day after day, with no apparent knowledge of their presence, nor make any attempt at their removal while their brood is being destroyed. The worms do not eat the young bees, but rob them of their food, so that most of those die over which they burrow. But if the larva is sufficiently developed to live the bee will be defective, often minus one or both wings, or so dry that it emerges with difficulty, having a segment of the cocoon adherent to its body. It is a law of the hive that they tolerate no invalids or imperfect bees in the colony; therefore these are carried out to become the prey of carnivorous ants.

It is the duty of the bee-keeper to examine his brood-combs now and then for these telltale elevated runways on the surface of the capped brood, especially when bees are carrying out dead larvæ or young bees.

When a colony is found infested, it will require bi-weekly examinations for four to six weeks to eradicate them. I had one very strong colony of the best Italians last summer, in a new hive with beautiful frames of brood that became infested, and I removed, in all, 114 worms from beneath the cappings of the brood. It required six weeks to eradicate them. I would find from four to fourteen worms at an examination. The best tool to operate with is a delicate sharp-pointed hook formed on the end of a steel wire about 6 inches long. With this you can rip up the runways from end to end without injury to the brood, and turn out the worm. When operating, turn the worm loose among the bees and see how they will pounce upon it and attempt to sting and carry it away.

Auburndale, Fla.

Report from Santa Clara Valley, California.

The season opened late, with lots of rain. Bees built up slowly, and did not do much work in the supers until June 1; but during June and July they did well. In our valley bees open the season with fruit-bloom; then come wild flowers, eucalyptus, and then, toward the end, buckeyes, redberries, and other shrubbery and trees found along water-courses. Of late years a great many areas have been put into seed-farms where onion, lettuce, and radish seed is raised wholesale. The honey from these is of first-class quality. Honey prices are good here. Fancy comb is selling at 20 cts.; No. 2, 15; extracted white, per quart, 50 cts.; amber, 40.

THE B. F. STILLSON CO.

Palo Alto, Cal., Oct. 12, 1911.

THE MUSCLES OF THE HONEY-BEE.

BY DR. BRUENNICH.

One of the most important characteristics that distinguish the vegetable kingdom from the animal is *voluntary* movement; and only in the case of the lowest organisms is it true that this difference will not stand the test, there being a great many forms of bacteria which can not be counted in the animal kingdom, but yet which possess the power of locomotion.

Movement in the lower animals is possible because of organs called muscles. While a common type of structure is evident in the whole animal kingdom, there is considerable difference in the development of particular classes of muscles. For instance, the vertebrates possess for involuntary movements (intestines, arteries, etc.), the smooth muscles, these being but cells of an inferior development; and for voluntary movements the well-known striate muscles, these being animal cells of a very high degree of evolution.

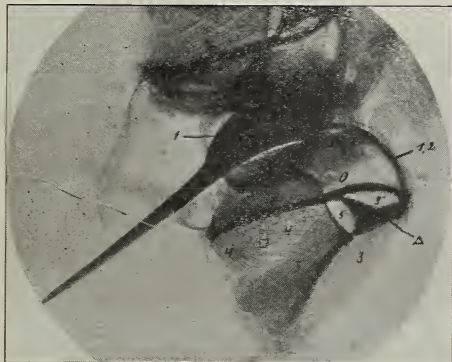


FIG. 1.—Sting of bee, showing muscles. 1, 2, spear and husk; 3, 4, retractor of spear; 5, protractor of spear; O, oblong plate; Δ , triangular plate; \blacksquare , square plate.

It is remarkable that bees and kindred insects possess two kinds of muscles which are very different from each other. To name them according to their structure, for the sake of simplicity and a better understanding of them, I will call them *tube* muscles and *fascicle* muscles. The first are found everywhere in the body of the bee; the latter are found associated in the breast of the bee, forming there the muscles of flight. Both muscles assist in voluntary movements. The discovery of involuntary muscles has not yet been effected.

Let us look first at the more frequent tube muscles. Unlike the flight muscles, these exist as single fibers, often united in groups, however, where each fiber seems to possess a certain independence. In Fig. 1, the photo of a sting, one recognizes a great number of those slender fibers, here united in loose bundles. Each fiber consists of a hollow cylinder of minute diameter. An extreme-

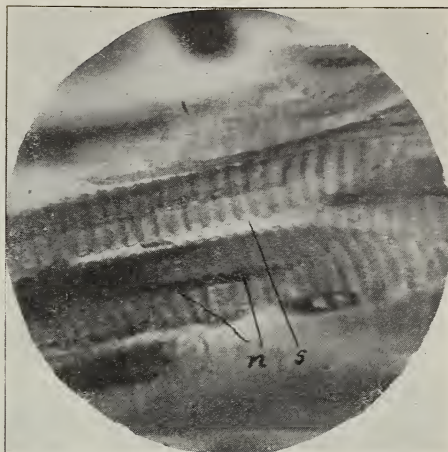


FIG. 2.—Tubular muscle—fibrils; n, nuclei; s, sarcolemm.

ly minute canal is trenching the fiber throughout its length. It is filled with protoplasm, and with thousands of nuclei side by side, forming a string of pearls (Fig. 2). The structure of the fiber is an intricate one. In Fig. 3 one recognizes at the first glance a distinct transverse streaking, even visible in Fig. 1, which is not so highly magnified. This striation is a result of the alternation of tiny sheaves of apparently dark and light color; i. e., of greater or lesser refraction. Every dark sheaf with half of the adjacent light sheaf contains a nucleus, and forms a primary sheaf, and it is clear that this little foundation is a unity, a highly developed cell. The proof of this assertion is evident when looking at Fig. 2 or the schematic Fig. 4; for every primary sheaf is enveloped in a fine membrane, the *sarcolemm*. But the finer structure of the little sheaves is still more complex, for every fiber shows, besides the transverse striation, a distinct longitudinal striation, Figs. 2, 3. This striation is due to the fact that every sheaf is composed of

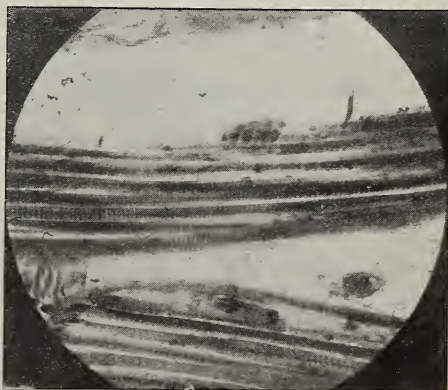


FIG. 3.—Tubular muscle.

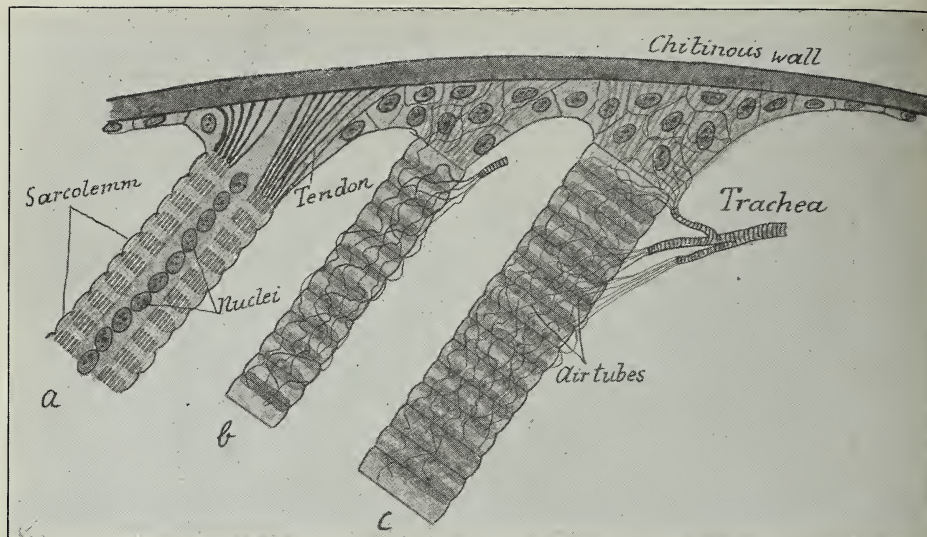


FIG. 4.—Schematic illustration of the tubular muscles.

many very fine staves. A transverse section through a large number of tube muscles, see Fig. 5, shows the fine staves as a series of minute points. Between the single fibers there are numerous tracheæ from which arise the finest air-channels, going in serpentine lines along the fibers, thus furnishing them the necessary oxygen and eliminating the carbonic acid.

These muscular fibers adhere firmly at one end to some part of the rigid chitinous harness, while the other end is grown together with some part of the body (antennæ,

tongue, wings, etc.), which is to be moved. By an energetic contraction of the muscular fascicle the extreme point is moved in a certain direction. The opposite movement is performed by relaxation of the fascicle with simultaneous contraction of the antagonist. To every muscle or group of muscles is a corresponding one or more antagonists. Thus the muscle (protruder) which pushes forth the sting possesses two antagonists (retractors), which have a tendency to withdraw the sting.

The fascicle muscles possess a high degree

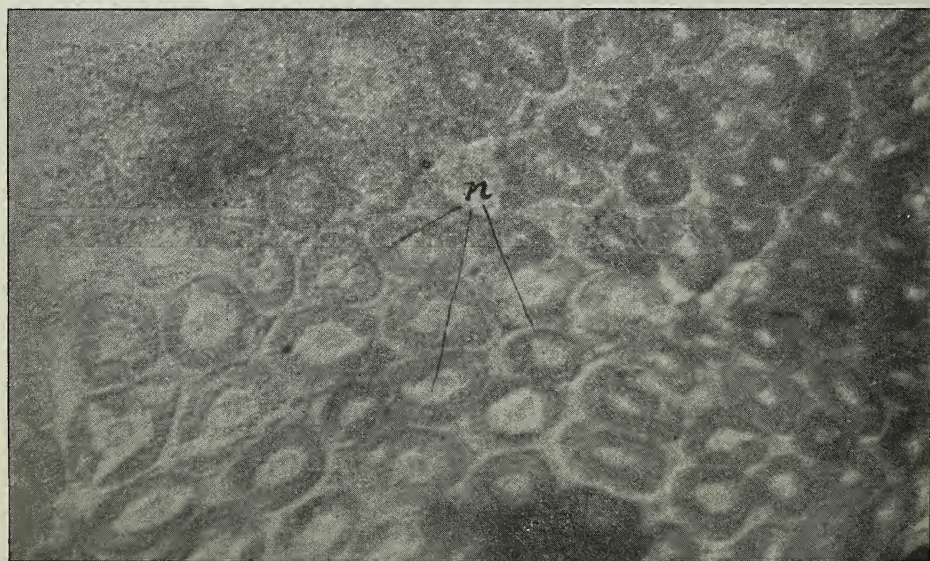


FIG. 5.—Tubular muscle, transverse section.



FIG. 6.—A fiber of fascicle muscle: t, trachea.

of development. Their structure is similar to the texture of the striate muscles of the vertebrates. One may discern a well-distinct longitudinal striation and transverse striation not less characteristic. The longitudinal striation is due to the great number of fine fibrils, forming a fascicle. The transverse striation owes its origin to the fact that each fibril is composed of sheaves of more or less refraction. Fig. 7 shows, in a transverse section, the fibers. A few nuclei are scattered rather regularly between the fibrils, which are not clearly shown in Fig. 6, but visible in Fig. 7. There is no sarcolemma around the fascicle, but a multitude of tracheæ penetrate between the fascicles. For example, see Fig. 8, showing a transverse section of the breast of a drone. Fig. 9 shows a great magnifying of these tracheæ, whose walls are strengthened by minute chitinous rods.

From those tracheal branches emerge a

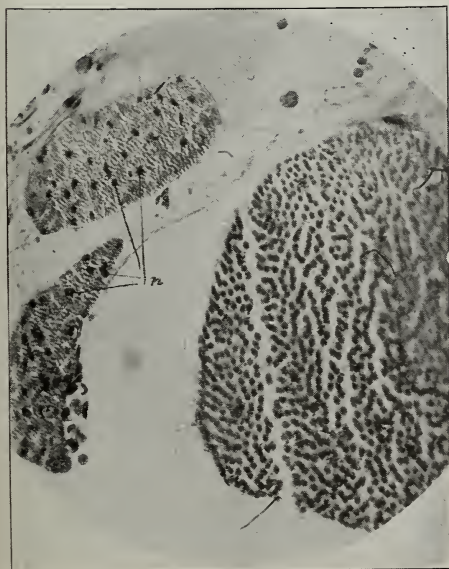


FIG. 7.—Transverse section of a fiber of the fascicle muscle: n, nuclei.

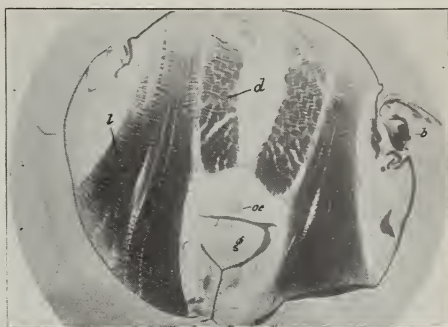


FIG. 8.—Transverse section of drone breast: l, levator of wing; d, depressor of wing; b, basis of wing; oe, oesophagus; g, ganglion.

great number of extremely fine air-tubes, like little trees, sending their boughs into the interior of the fascicles. In Figs. 8 and 9 only the chitinous rods are impregnated with silver by a special method of coloring. As the finest air-tubes do not contain any of those chitinous rods, nothing is seen of them in the photos. If they too had been colored the figure would show nothing but a thick web of black lines. The exchange of oxygen and carbonic acid takes place only in those minute air-tubes.

The exceedingly rich supply of the flight muscles with tracheæ proves the great importance of the gas exchange in the muscles. Indeed, the task of the flight muscles is enormous, the flight of a body heavier than air requiring great mechanical labor. Deliberating on the quickness of the movement of the four wings, one may conceive that the rather simple-structured tube muscles can not suffice, and that here organs are required which possess a considerably higher development.

The breast contains three pairs of air-entrances (stigmata), and the respiration must take place in such a manner that the alter-



FIG. 9.—Tracheæ in a fascicle muscle.



FIG. 1.—Twin mating nuclei as used by C. W. Phelps, Binghamton, N. Y.

native working of the flight muscles will attend to the expiration and inspiration of the necessary air. Probably there is no abdominal respiration when a bee is flying; but the bee with reposing wings respire only with the abdomen. Before the bee takes flight it fills its abdomen with fresh air to diminish the specific weight of the body. Zurich, Switzerland.

THE USE OF COMB-CARRYING CASES IN THE APIARY.

BY C. W. PHELPS.

When I commenced bee-keeping in 1879 I had never seen an Italian queen. I received my first one in 1880. Shortly after that I commenced rearing my own queens, making cell-cups by the rake-tooth method, and transferring larvæ *a la* Doolittle. I still have one of these old top-bar sections with cells.

We use the twin mating-boxes, Fig. 1, to a certain extent, and like them; but it took us some time to learn how to use them properly. We used to have trouble with the bees swarming out, etc. The swarming-cases, as shown in Fig. 2, are used for so many purposes that I have not space to tell of them at length. We could not "keep house" without them. We use them for forming nuclei, introducing valuable queens, etc. We can take them on street-cars, with a few bees, and set them in a new locality where the bees will stay. It is only in the last year or two that we have learned by a combination of methods which we use in connection with this box that we can intro-

duce queens *absolutely* without loss. Suffice it to say, at this time the principle is simply to make the bees want the queen and the queen want the bees.

The boys shown in the photo are a great help to us.

Our honey is all sold here in local market, usually about as fast as it comes from the hives, and is out of the way by the time outside parties commence to ship here.

Binghamton, N. Y.

AN IDEAL EXTRACTING-OUTFIT.

BY F. J. SEVERIN.

During the last few years I have had an extensive experience in extracted-honey production in the yards of such men as Mr. John Nippert, of Phoenix, Ariz.; J. W. George, of Imperial, Cal.; E. F. Atwater, Meridian, Idaho, etc. I have traveled over the State of Washington from west to east through the famous Yakima Valley, stopping at various places, and investigating bee pastures. I was also in Central Oregon, then later in Eastern Oregon, all the while getting acquainted with the northwestern bee-keepers and studying their methods.

Mr. J. W. George, whom I was with last, manages his bees differently than any other man I ever worked for. He has eight out-yards, with a man at each yard, and he certainly has an opportunity, in this way, to judge his men thoroughly.

Fig. 1 shows the apiary of 175 colonies that I managed. The shed is 240 feet long and 14 feet wide. The brush roof provides the shade so necessary in this country. There are two rows of hives, one facing north

and the other south, the shed running east and west. The ground between is as hard and level as a floor. The honey-house is at the center of the shed. In this picture it looks as though it were at the end; but the other half of the shed extends beyond, out of sight.

By observing closely, two colonies may be seen in front of the front row of hives that stand down on the ground. These are supersedure colonies with queens ready for mating. When the queens return they usually go into the nearest hive; and if the hives prepared for them are left in position with the rest so that all things look alike, even though guards are placed to mark the location, they will, eight times out of ten, get into the wrong hive and be killed, or else kill a good layer and create no end of trouble.



Fig. 2.—Carrying-cases may be used for forming nuclei, introducing queens, etc. They are cheaply made, and yet very handy in a queen-rearing yard.

While with the different bee-keepers I have had abundant opportunity to experiment with various styles of hives, from the shallow to the Jumbo, with the plural-queen system, etc.; but I have been most interested in improvements inside the honey-house. I had a tinner make a capping-

melter, which in some respects resembles the melters used by E. F. Atwater and F. A. Powers, of Parma, Idaho; but I introduced several improvements over these machines. I also made what I call "the Severin improved honey and wax separator," on which I worked three weeks before it was ready for use. My first experiment was made with a five-gallon honey-can, and then, after noting all of my failures and improvements, I had a tinner go ahead with such parts of the outfit as I could not make myself. Mr. George expects to adopt my new separator, and will have nine of them made; this win-



Fig. 3.—The Phelps boys, who are a great help in the bee-yard.

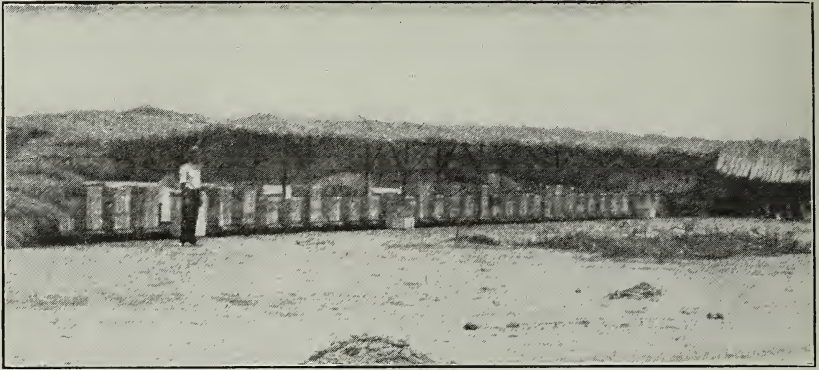


FIG. 1.—Apiary of 175 colonies at Imperial, Cal., managed by F. J. Severin. The extreme right of the picture is really the center of the long shed apiary, the hives shown being only half of the total number.

ter—one for each yard, and I think he will also adopt my melter in preference to his own.

In the first illustration a pile of dirt is seen at the extreme right of the view. This was thrown up to accommodate a two-ton tank sunk in the ground. The tank has a very heavy canvas cover to keep out the rain, supported by a pole, and raised like a tent over the three-inch galvanized pipe that runs from the extractor to the tank. In this way every thing is dirt and rain proof.

The extractor as shown in Fig. 2 is well bolted down, one inch above the level of the ground, the three-inch pipe referred to ex-

tending from the bottom of the extractor to the tank in the ground. This gives all the convenience of an extractor on the ground, and avoids the inconvenience of having it elevated on a big box and then drawing the honey off into a pail, which has to be lifted high in the air to pour in a storage-tank. It does not take long to dig the hole in the ground for the tank; and if a fifty-case tank is used, it will hold all that is extracted. At one side a trench is dug down below the bottom of the storage tank for filling the cans. I leave one can slowly filling while I carry out a filled one, and then bring an empty one back. At one time when the honey was cold I let off 27 cases of two 60-lb. cans

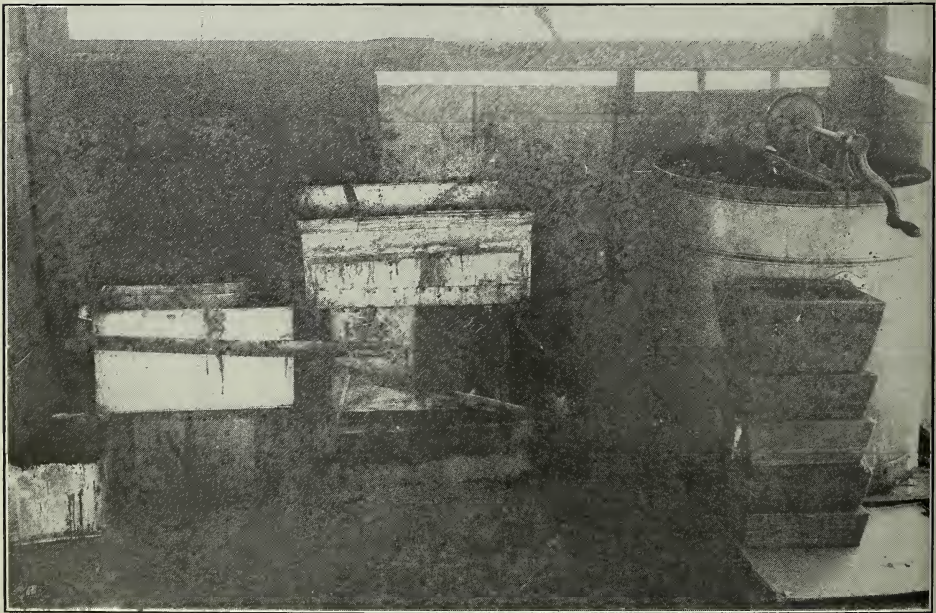


FIG. 2.—Interior of F. J. Severin's honey-room, showing extractor, capping-melter, and wax-separator.



R. F. Holtermann's bees in winter quarters, showing the four-colony winter cases and eight-foot fence to form a shelter from the cold winds.

each in two hours. Warm honey requires a longer time here in Imperial Valley.

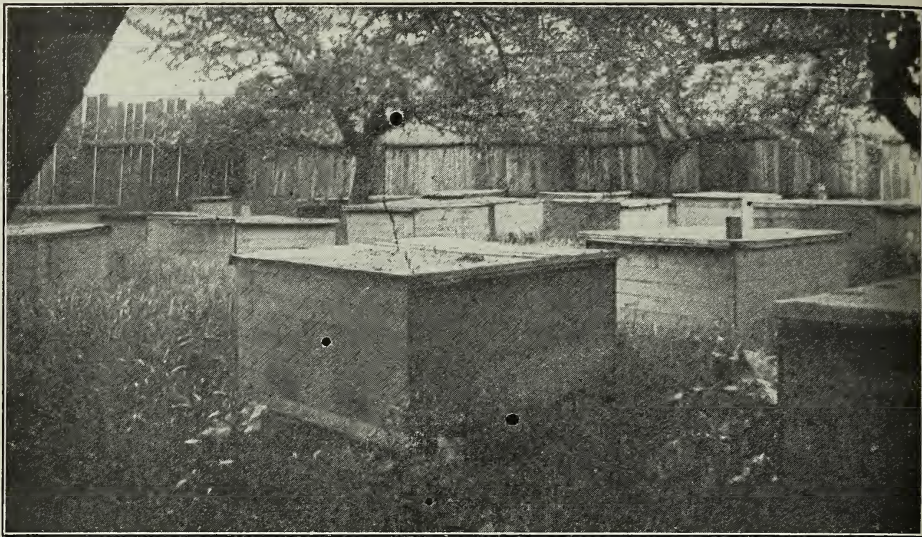
The wax-melter (that I will describe in a later article) might be a little closer to the extractor than shown. Close to the melter is my separator referred to, which I will also describe at a later time. This melts the honey and cappings at a temperature of about 150 degrees, and a trough is made at one side and end to carry away the honey through the three-inch pipe that conveys the honey from the extractor to the tank. The gasoline-tank for the stove under the melter is located outside the honey-house. By having every thing conveniently arranged I save considerable time in walking while I am working. The wheelbarrow is only three feet from the extractor, and all I do is to step sidewise or back, and then turn to get more combs of honey. Every thing is within reach, and is low enough so I can work to advantage.

In the morning, when I am ready to extract, I go to the honey-house, lift off the melter, start the gasoline fire, then replace the melter, making sure that it is full of water. I then light the smoker and start off with the wheelbarrow after a load of honey. I first bring in a load of from four to six ten-frame supers that I have prepared the day before. This gives me so much to go on. The rest of the combs have to be brushed and shaken to get the bees off. Mr. George does not use excluders, nor can he use bee-escapes without excluders, the weath-

er being too hot to permit it. Besides, the bees need all the ventilation which they can get directly, and the $\frac{3}{8}$ entrances are enlarged one-half inch by little wooden blocks at each front corner between the bottom-board and hive body.

When I get my first load into the honey-house I uncap four combs, as the knives are not very hot yet. These I put in the extractor, throw the honey out of one side while I am uncapping two more combs, then reverse the baskets, and, while the machine is still spinning, uncap two more, which completes the four for the next load in the extractor. At this point I take out the four empty combs in the extractor, and put them in the super ready to receive them, then continue with the whole load in the same way. When I return with the next load, the first cappings are all melted, and the knives are good and hot for the rest of the day. After the second load, and from then on, the melter heats the cappings so fast that, when I get through with the last comb, it is nearly dry, so that I have to turn down the fire a little to keep it from boiling over. There is thus nothing to do except to bring in the honey, uncap it, and extract, all the honey, wax, and slumgum being taken care of safely and automatically.

The separator holds more wax than I can uncap in ten or eleven hours. I begin when every super is sealed two-thirds or quite full. My best day's work was when, without help,



Another view of one of the yards: the colonies are often left in these cases until clover-bloom.

I extracted 35 ten-frame supers of honey, getting, in the ten hours, 13 cases of honey and 15 lbs. of wax, or a little over one pound to the case. Mr. George averages 22 lbs. of wax to a ton of honey. We use eight combs in a ten-frame super, and uncap deep.

By the extractor in Fig. 2 will be noticed five large cakes of fine yellow marketable wax without a particle of dirt in it, just as it came from the separator.

San Diego, Cal.

THE OUTSIDE WINTERING OF BEES.

BY R. F. HOLTERMANN.

At this date, Oct. 26, my bees have been in winter quarters, and ready for winter, for over three weeks, and I have for that length of time turned my back upon them and their care, perfectly confident that they need no further attention until April, unless a thaw should set in and the melting snow



One of the covers removed, and the leaves taken out to show the hives underneath.

turn to ice, preventing the bees getting air; and then arrangement has been made at each yard to remove the obstruction.

Some of the readers of GLEANINGS have wondered that I should be wintering my bees outside when a first-class bee-house costing \$1000 is available.

WHY I WINTER OUTDOORS INSTEAD OF IN MY \$1000 CELLAR.

When wintering in the above-named cellar my method was to remove the bees from the cellar and place them on stands. They were next taken to clover pasture, sometimes a distance of thirty miles. Next they were taken to buckwheat, and finally returned to the bee-yard in connection with the cellar.

By this method the hives and bees were unprotected during the spring, also in the autumn, until placed in winter quarters about Nov. 20. I was also compelled to be on hand when the cold weather began to moderate in spring, and there was always a good deal of anxiety as to the best time to set out, sometimes to find that, owing to conditions of weather, many bees had perished in their first flight, and others had drifted to the disadvantage of the weaker stocks.

Again, I had to be on hand in the autumn until about Nov. 20; and even after that, the outside doors required too intelligent and expert judgment to regulate to trust to inexperienced hands. The bees were thus often unprotected, which was injurious to them, not only in the spring but during cold damp days and nights in the fall of the year. In the spring, with low temperature, I have found the bees quiet and inactive, so that practically no enlargement of the brood-space was taking place when bees packed offered a strong contrast in their interior activity.

METHOD OF WINTERING.

As I now winter the bees shown in the illustrations in connection with this article, four twelve-frame Langstroth hives are wintered in an outer case; two hives are placed in the case side by side, and another two also side by side, but back to back with the first pair. This makes two sides of each hive have the best of winter protection—namely, the protection of other hives warm with bees.

The cases consist of a platform of half-inch boards nailed upon three cleats 1×4 inches, the two at each end being on edge, to give strength. The three cleats extend half an inch beyond the side of the platform, and are so arranged that the two at the ends project half their thickness beyond the ends of the floor-boards.

By this construction the half-inch siding lumber may extend down past the floor, and rest upon the half-inch projections all around, protecting all from lodging water and snow. The sides and ends of the case are made of tongue-and-groove material, ½ inch thick, 23 inches high, and therefore make a case deep enough to hold an extracting-supper on top of each hive. This half-

inch stuff is kept together and strengthened by a cleat on the inside, 1×2 inches, and half an inch shorter than the side or end is high, namely, 22½ inches. These cleats come even with the top of the case, but are ½ inch short at the bottom, the object being to allow the side or end to extend the half-inch below the top of the platform, and rest on the end of the bottom cleats, as mentioned.

The cover of the case is made of half-inch material nailed at the ends to 1×2½-inch cleats. These latter cleats extend down over the case. They strengthen the cover; and if the locality is windy they can be fastened to the case by means of hooks. The lumber is covered with roofing-paper nailed to the wood part of the cover, and made watertight by the judicious use of roofing cement. The cases, from the above description, will be seen to have a perfectly level or flat cover. They can be made to shed water by slightly raising one side of the case.

The bees go in and out through the case by means of ⅝-inch round holes. Three are recommended, but I will confess I have found that size of entrance inadequate in the spring before removing from the case, as I leave the bees packed sometimes until clover is opening, having many supers on before removing from the case.

The case is set on blocks 8 to 12 in. high, one at each corner. This takes them above water and ice which may lie or form on the ground. There are no supports for the center cleat, as this is held up to the case by means of galvanized iron straps 6×1 inch, binding it to the siding. Considering the tendency to settle and heave, it would be practically impossible to support the case evenly at six points, and by using the above device it is unnecessary.

In making my cases I followed the directions of Mr. Jacob Alpaugh, as also in building the fences described below.

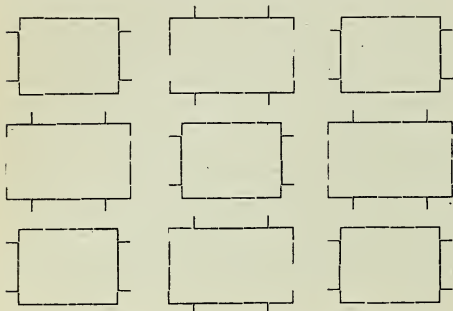
The colonies in their ten-frame hives are packed in leaves about one inch underneath, three inches in front, six inches at the sides, and about 10 inches on top. There must be a shallow air-space left between the leaves and under side of the cover, and some small openings to allow the air to circulate over the leaves and carry away the moisture which rises from the cluster below. This latter is very important, as it prevents moisture from condensing and freezing at the entrance in cold weather.

OUTSIDE PROTECTION.

No one not conversant with the matter can realize the advantage and comfort to be derived from a high fence about the apiary. The freedom from cold winds during the winter is of very great importance; and with an apiary of 100 colonies two seasons' use would amply pay the cost of a fence 8 feet high about the space needed for that many colonies. Then the comfort, during windy days, when working in the apiary, is great. In the Ebert yard I have a space 60 feet square for 40 winter cases (160 colonies), which is ample. Then there are large ap-

ple-trees which practically protect the entire apiary from the sun. The other apiaries are not protected from the sun quite as well; but by running a cross-board at each side of the top of the fence, and another opposite the bottom scantling, every second board can be drawn out during hot weather, allowing a current of air to pass through the apiary.

The hives face north and south in one case, and east and west in the next, thus:



This gives the bees a better chance to mark their location when the hives are not far apart.

RESULTS.

The bees are now being wintered for the third time in this way, and nothing could induce me to go back to cellar wintering. The expense of one move is cut out with its attendant hard work, the most trying and nerve-racking of all the year, as I move only to buckwheat and back, and generally I do not move all the bees at that time.

Then there is the before-mentioned protection. The bees can be left by Oct. 1; and if plenty of stores are given, there is no need of being with them until April 15, or, at a pinch, May 1.

The feeding is done after the hives have been put in their winter cases. When so fed, and not packed too warmly at the top, the bees are less likely to rob, and they take down and ripen food more rapidly.

Better results have been secured by this method, and my hives are protected from wet and weather for eight months in the year, and the four months they are exposed it is generally the driest of the entire year. There is a rental coming in from the bee-house (as a store-house), which covers the ground rent and place to extract for my four apiaries.

To anticipate any question, let me state that, in this locality, the temperature sometimes reaches 20 to 23° below zero, but not often. I believe bees could be well wintered in the above way quite a distance north of here. Another thing, when packed the bees do not as readily take wing, as the warmth of the sun's rays does not reach them as soon as when the bees are not packed.

Some may question the wisdom of the fence. Those living near say that, when a cold wind blows outside, to go inside of the fence is like being indoors. The fence

is made of half-inch instead of inch boards, thus reducing the cost and adding to the durability. Of course the framework must be strong enough to resist the wind pressure, which at times is very great. The bees have to fly over the fence 8 feet high, and they are thus much less likely to come in contact with man or animals.

The two young men in the photograph are Mr. Enoch R. Madeira, of Pennsylvania, and Mr. Fred R. Hays, of Ontario, Canada, who spent the season of 1911 with me learning bee-keeping.

Brantford, Ont., Can.

AFTER THE ISSUING OF A PRIME SWARM, WHEN DO THE YOUNG QUEENS EMERGE?

Reports Conflict Somewhat, but Generally Indicate that the Queens Hatch Seven to Eight Days Later.

QUEENS HATCH FROM FIVE TO EIGHT DAYS AFTER THE SWARM ISSUES.

When I was reading this sentence, Sept. 1, page 537, "The young queens usually hatch from the cells about the day that the swarm is cast," I looked at it to see if my eyes were right, and read it over several times; then I concluded that a word or two had been left out.

It is a great mistake, according to conditions found in "this locality," Don't take Mr. Marchant, Dr. Miller, Doolittle, nor any other person for authority, but ask the bees themselves.

I keep my queens clipped; and when the bees swarm I remove the frames of brood and put them in a new hive, filling the old hive that is on the old stand with drawn comb or foundation while the bees are in the air. I place the hive with brood to one side of the old hive, with the entrance toward another direction; then when the swarm returns to the old stand I give them the clipped queen. In about five or six days, just before the young queen hatches, I brush the bees from the combs of brood, in front of the old hive, and distribute it among the weakest colonies. But if the brood with queen-cells is from an extra-good queen, and I want to increase, I divide the brood into nuclei and use the queen-cells just before they hatch.

The queen hatches from the cell from five to eight days after the first or prime swarm is cast. After-swarms act differently. In handling so many frames of brood I have a good chance to observe, for I keep about one hundred colonies. I handle frames instead of hives, for I am not very strong, and keep my bees in clumsy, awkward chaff hives; but the bees winter nicely in them.

Osceola, Neb., Oct. 18. C. N. SEWARD.

WEATHER CONDITIONS CONTROL THE TIME WHEN QUEENS HATCH.

For the last two years I have noticed that weather conditions in this locality make some difference. Swarms issue anywhere

from one to seven days prior to hatching of queen-cells. I have sometimes seen a young queen that was unable to fly come out on the alighting-board with the swarm and go back into the hive.

In regard to Mr. O. B. Metcalfe's experience with the eight-frame hive, Oct. 1, p. 586, I would say that I agree with him. It has proved about the same here. Most of my bees are in eight-frame hives, although I have a few ten-frame, and I have noticed for the last few years that the eight-frame hives breed up faster in the spring and produce more honey, whether comb or extracted, than a ten-frame hive.

Haskinsville, N. Y. M. C. SILSBEE.

QUEENS SOMETIMES HATCH THE DAY BEFORE THE SWARM ISSUES.

A young queen often emerges from the cell before the swarm is cast, either on the same day or the day before.

Two years ago I had a large swarm come off and settle in a tall apple-tree. While the bees were flying in the air I picked up at the hive entrance a queen that was still white, and so young she could hardly crawl. I kept her at the entrance, and the bees had hardly settled before they began to come back. I put the queen on a table and smoked the bees for the purpose of keeping them from the hive until they found her and settled on her. Then I hived them. The young queen does not always hatch a week later, but sometimes does.

In regard to a Straw on page 582, Oct. 1, I will relate an experience with moths. I once had a late swarm die in an old-fashioned box hive, early in winter. I put it in an out-building, and when spring came I neglected to take the comb out until about the 15th of August. When I looked at it, it was full of moth-nests. There were hundreds of worms and millers, so I burned it. Moths will attack comb in this country anywhere they find it, regardless of bees or whether it has been frozen or not.

Webster Springs, W. Va. L. S. WEESE.

QUEENS HATCH SEVEN TO EIGHT DAYS AFTER THE SWARM ISSUES.

Thirty years of experience with from five to thirty colonies of bees has given me a chance to make some observations, and I find that my observations do not always coincide with those of bee-keepers of other localities. I can not agree with Mr. Marchant on the hatching of young queens. It has been my rule, when a swarm issues, to open the parent hive and immediately remove a couple of frames of brood; and to avoid the possibility of ripe queen-cells I have often looked through the whole hive. I never yet found a young queen at such a time. However, from seven to eight days later I have often found one or more queens emerging, and others apparently held back by the bees; and while cutting out these ripe cells I have noticed queens crawling out as I would put them aside or in a protector.

Second swarms usually emerge from the 10th to the 12th day, always subject to weather variations. I have had swarms come out with nothing but eggs in the queen-cell cups; but that is not the rule.

Jamesstown, N. Y. J. W. WILSON.

QUEEN HATCHES ABOUT SEVEN DAYS LATER.

I have kept bees in several States during the past 25 years, and have found that a swarm comes out about seven days before the young queen hatches. I saw no deviation from this rule when I was in Mr. Marchant's own territory.

Rio, Va. H. GRIFFIN.

SWARMS ISSUE ABOUT THE TIME CELLS ARE SEALED.

You ask, page 582, Oct. 1, for reports on the day swarms leave the old hive. The rule here is that prime swarms leave about the time cells are sealed, the weather permitting. The older the queen, the longer the bees stay in the old hive after the cells are completed. In one or two cases I have known the bees to kill the old queen and go out with a virgin the next day.

Cozad, Neb. THOS. ATKINSON.

IF BEES DO NOT SWARM THE DAY AFTER CELLS ARE SEALED THEY WAIT UNTIL THEY ARE READY TO HATCH.

In all the text-books I have read, and in dozens of articles, it has been stated that the prime swarm is cast the day after the first cell is sealed, and the first after-swarm about eight days after, the weather being favorable. This would mean that the after-swarm was cast about the time the first cell was hatched. Some years ago I decided to let all colonies swarm that wanted to, as part of a system of management I was trying out. I kept a very careful watch on the brood-chambers, and, to my great surprise, found that quite a large percentage did not cast the first swarm till the cells were ready to hatch. I was using about a hundred colonies in this experiment, the majority of which swarmed, so I tried the thing quite extensively. As a rough rule, I should say that, if the colony does not swarm the day after the cells are sealed, it will wait till they are ready to hatch. Of course, there are many exceptions to this; and if one or two swarms issue on a hot day it is quite apt to set the whole apiary swarming, without much regard to the state of the cells. Indeed, this put an end to the system I was trying, as I got weary of trying to separate a mix-up of some half-dozen swarms.

Hatzic, B. C. WM. L. COUPER.

SWARMS USUALLY ISSUE ABOUT THE TIME CELLS ARE SEALED.

With favorable weather and the necessary amount of nectar in the field, it is my experience that bees seem to be in a condition to swarm about the time the first cells are capped over. We have some neighbors who have a good many after-swarms. They tell

me they usually get their second swarms about eight days after the first (or prime) swarm issues. Supposing the cell to be capped one day when the prime swarm issues, and the virgin that leads out the after-swarm is one day old, this would agree with our experience. Of course, some swarm before capping queen-cells. In rare cases bees swarm without any apparent preparation for swarming in the way of cells. In Mr. Crane's case, page 781, Dec. 15, 1910, where virgins were caged from the parent colony after the issuing of the first swarm, the bees were probably held back by unfavorable weather or honey conditions, as he says this is more likely to occur during the fore part of the season, when we may suppose the weather would be more likely to be unfavorable. If we see virgins with the swarm when hiving them, as with a superseding or after-swarm, then we go to the parent colony with our cages, *a la* Crane, and cage some nice virgins if we are in need of them. But if we go to a colony after it has cast a swarm, with normal weather and other conditions, we usually find, instead of virgins hatching, cells as I have described above, but no virgins. In this controversy, in my humble opinion Dr. Miller is right, and Mr. Crane and the editor wrong, supposing conditions are normal.

Remus, Mich.

E. D. TOWNSEND.

SWARMS ISSUE BEFORE CELLS ARE SEALED.

I wonder where I could get some bees accommodating enough to wait until virgins hatch. Mine are so inconsiderate as to swarm before cells are sealed, in many cases, and never wait long after sealing unless bad weather prevails.

Washington, D. C. GEO. S. DEMUTH.

[The "goak" is on us; and we suppose, by all rules of warfare in cases like this, we owe Dr. Miller a box of cigars; but as the good doctor and ourselves don't smoke, and neither of us has any use for tobacco in any form, we owe him a silk hat. If he will go to the store and buy one we will pay the bill; or we will send him ours, because ours is too big now.

Joking aside, we are frank to admit that we may have been misled by conditions of locality or by a condition like that mentioned by Mr. Couper above, or, what is more probably true, by unusual weather conditions at the time the fact (?) was recorded in our mind. No matter now, the rule is that a prime swarm comes out about the time the first cells are sealed, and after-swarms about the time the first virgin is hatched.—ED.]

BEE-KEEPING IN THE SALT RIVER VALLEY, ARIZONA.

Moths and Crickets do Much Damage.

BY L. M. BROWN.

Does it ever get hot in Salt River Valley, Arizona? Well, let me tell you about it. Tallow will melt in the shade, and have the

fluidity of water. Let the contents of a broken egg be spread out on a stone, and the sun's heat in the stone will cook the egg done. Of course, the stone must be exposed to the direct rays of the sun, some time between 11 and 3 o'clock. Some days are cooler than others, and some days hotter than any; but let me tell you nine-tenths of the Salt River Valley people—Indians, Mexicans, white people, and all, sleep out. Any old place will do—under sheds, on the house roofs, under trees, under the starlit sky—anywhere. And what nights! Usually there is a gentle breeze, cool enough so that a blanket makes one comfortable. Sleep? As the Colorado man says, "*You just bet.*"

I am running for comb honey, and am a novice at that particular branch of the business. From 1881 to '86, in Nebraska, I produced extracted honey exclusively.

I want some advice about my crop of comb honey. I have 13 colonies, and shall have somewhere in the neighborhood of 800 lbs. I am just letting them fill one super after another, slipping the empty one with empty sections supplied with surplus starters under the filled-up supers, next to the brood-frames. I have an idea that it would be for the best to remove the capped and completed surplus; but we have drawbacks here that we are not all in a condition to combat. Crickets will uncap our surplus, and keeping out the moths is another serious difficulty. Will it damage our capped sections to a great extent where they are left on, giving the bees access to all the supers? If so, will that damage equal the one of moths and crickets?

Why don't some queen-breeders put the Caucasian queens on the market? I don't believe the Italians are the bees for Salt River Valley. We are likely to have a honey-flow of some kind here—little or great—at almost any season.

Phoenix, Arizona, Aug. 19.

[If there is no way to keep finished comb honey away from crickets and moths except to leave it on the hives, then we should certainly do so, for the travel-stain would not detract so much from its value as uncapped, moth-eaten cells. But we can not believe there is no other way. Honey fumigated with carbon-bisulphide and then put direct into tight shipping-cases should keep safely.

A number of the queen-breeders are furnishing Caucasian queens.—ED.]

Paste for Labels on Tin.

Dissolve two tablespoonfuls of gloss starch in as little water as possible to make a thin solution. Then dissolve four tablespoonfuls of caustic soda in a glass of water. Pour the caustic solution into the starch solution, stirring it. Add enough of the caustic solution to cook the starch, when it will be ready for use. If the labels will not stick, add more caustic. This paste will keep three or four weeks, and then may be renewed by adding more caustic. I advise the use of rubber finger-stalls if a large number of labels are to be put on, as this paste is likely to make sore fingers.

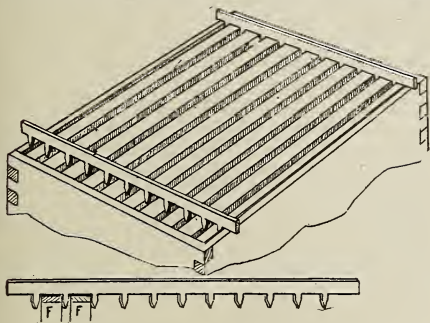
Cauley, Wyo.

B. F. SMITH, JR.

Heads of Grain from Different Fields

A Device for Accurately Spacing Loose Hanging Frames.

The drawing shows a spacer which I invented, and have used for twelve years. It works like a charm for me, and can be made to space any distance. The upper end of the tooth is of a thickness to make the space between the frames, and between the teeth it is of a width to fit over the extracting-frames. The teeth are made wedge fashion, so as to have the gather, and the rake-head is made long enough to extend one inch or more over the edge of the super at each end, and you must have two for each workman. Then place your extracting-frames in the body as nearly right



as you can guess; then take one of the spacers and insert it in the frames by wiggling it sidewise, and soon it will drop into place, which spaces the frames at that end of the super. Then take the other spacer, and it will drop into the spaces—the first one made. Then hold the second spacer down, and draw or shove it to the other end of the super, and then the ten frames will be spaced exactly right, with no metal spacers to take the edge off your knives; and while it takes me a good while to tell it, I assure you it is a speedy way to insert frames in a super. I have only one hand, and the device is a great help to me in handling the spacing business.

Kearney, Neb.

A. J. SNOWDEN.

[This plan is quite old. It has never proved to be very popular.—Ed.]

Why were there No Swarms? Trouble with Moths.

I have thirty colonies of bees; and, so far as I know, not a swarm issued from a hive during the past summer; and I have heard several people, who keep a few colonies of bees, say that they had no new swarms. Do you think it was due to the dry weather?

The moths were very troublesome the past season. They destroyed two of my colonies. What is the best way to fight them?

What is the best method for preparing to winter bees outdoors? Last winter I put on an empty super, and placed oat straw in coffee-sacks, sufficient to fill the super, and in this way made a cushion. The bees wintered well, although some of the cushions collected dampness. The mice got into a few hives and made nests in the straw.

Tuscola, Ill., Oct. 17.

J. M. GOODSPEED.

[We presume that the reason your bees have not swarmed is that last season was such a poor one for honey. Swarms issue when colonies are prosperous; and since this last season was such a poor one, individual colonies in many instances found it hard to get built up strong. A weak colony very rarely casts a normal swarm. It may be possible in your case that your queens were not prolific, and did not start brood-rearing early enough in the season, or else went at it in a half-hearted way that did not result in booming colonies.]

If you keep Italian bees, and are careful to see that all colonies are strong, the trouble with the moth-worms, wax-moths, etc., will disappear entirely. The Italians protect themselves most vigorously against all such forms of enemies.

It is better to prevent moths than to destroy them after they get into the hives; but in case

some of your honey contains moths you had better treat it to the fumes of carbon bisulphide. If you place a little of the bisulphide in a shallow dish it will evaporate; and, the fumes being heavier than air, they will go down. You should, therefore, put your honey in a tight box, or in some place where you can keep the air out, and then put the carbon bisulphide at the top. If your sections are in shipping-cases you should remove the follower and separate the rows of sections as much as possible, so that gas will have a chance to penetrate to every part. By piling up the cases criss-cross you can treat or fumigate quite a number at a time. It is better to do the work in a large box in this way instead of in a room; for there is so much space in a room that, unless it should be an extremely small one, the gas would not be dense enough to kill all the moths, moth-worms, and eggs, unless you had quite a quantity of the liquid around in several shallow dishes.

Your plan of preparing colonies for winter is all right, and we do not know that it can be improved upon, although you might find it to your advantage to put a super-cover underneath that chaff cushion that you prepare. The bees seal this down and then have a passageway across the tops of the frames. The water condenses on this cover and on the walls, runs toward the front and out of the entrance, and the cushion or other packing material does not get wet.—Ed.]

The Value of a Drawn Comb.

Please tell me what value to give a drawn comb. At the beginning of the year I want to give them a value in my inventory. They are worth more than a frame of plain foundation.

Palo Alto, Cal., Oct. 19.

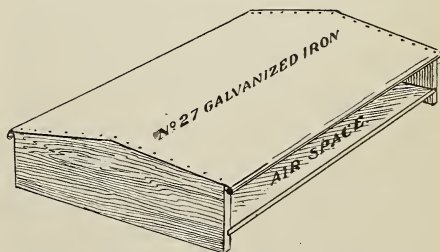
H. J. STILLSON.

[The relatively small amount of wax that these combs contain does not amount to very much, being only from four to five ounces apiece. Their value then as raw material is not very much, for it is seldom, perhaps, that they contain over ten cents' worth of wax, and it would cost something to render such wax. But, of course, the chief value of drawn combs lies in the fact that their use permits a much greater amount of honey to be stored. There are certain times of the year when straight drawn combs might be said to be worth almost their weight in gold; but at the same time it would hardly be fair in an inventory to put them down as worth more than 25 cents apiece, probably.]

This is a hard matter to get at. If any of our readers have reason to differ with us on this point we should be glad to hear from them.—Ed.]

A Metal-roofed Air-spaced Cover.

I am sending a sketch of a hive-cover that I have been making and using, and I like it well. The end cleats are $2\frac{3}{4}$ in. wide in the center, and beveled to 2 inches at the ends, and rabbeted out $\frac{3}{8}$ inch deep to receive the half-inch bottom or super cover. The roof is of galvanized iron, with the side edges rolled over $\frac{1}{8}$ inch around a steel rod that is pulled out after the roll is made, like an eave-trough. This roll makes the edge of the sides rigid, and will not bend. The roll extends out just



over the end of the cleat, giving a one-inch air-space at the edges, and larger in the center. This cover is cheap, and can be used open in summer; and by inserting a couple of inch strips at the sides they can be packed with cut straw, and packed for fall, winter, or spring use.

Stanwood, Ia., March 30.

L. G. WOOLISON.

The Foul-brood Law in California All Right as it Stands.

Mr. P. C. Chadwick has made a very unwarranted attack on our foul-brood law, p. 552, Sept. 15. We who framed it and had it passed know what we have, and consider that it ranks well among those of other States. J. F. McIntyre, of Ventura Co., was chairman of the committee, and others of vast experience were on the committee.

If Mr. Chadwick will post himself on the law he will find that all of his points are embraced in the law, and that the inspector has the right to examine any and all apiaries in his county, and to oppose him is resisting an officer. Five counties have passed an ordinance prohibiting the importation of bees or fixtures from any point within twenty miles of where any disease is known to exist. The counties are Ventura, Los Angeles, Orange, Riverside, and San Bernardino.

One man, in attempting to evade the law, paid a fine of \$50.00 in Orange Co., and moved out of the State. Now, if the inspector of his county is neglecting his duties it is no fault of the law.

In Riverside Co. the supervisors allow a number of deputies, and recommend men of experience for the position; and I have lately made a tour of the county (partially), and have found satisfactory results, and every one is well pleased. We do not destroy any colonies that can be saved reasonably, and I think that by another year we shall have disease well in hand, as our supervisors have made a liberal appropriation for the work. European foul brood has not appeared in this county to my knowledge. I think one case in Los Angeles Co. has been reported at Asusa, and the inspector is looking after it sharply.

Corona, Cal.

T. O. ANDREWS.

Nine Combs in an Eight-frame Hive.

I notice that O. B. Metcalfe, p. 586, Oct. 1, wishes information on the use of narrower frames, or, rather, nine frames in an eight-frame hive. I have about 300 hives the same width as the eight-frame Langstroth, but shorter and deeper, in which nine unspaced frames were used for years, and which gave excellent satisfaction as breeding-hives. There seemed to be no objection on the part of the bees to this narrow width of frame, as the brood was more nearly perfect, if any thing, than in the regular width. There was not the projecting ridge of honey above the brood, as is the case with the regular width. In the spring, these hives were noted for having a greater quantity of brood for the amount of bees than the wider frames. I believe nine frames would be preferable to eight in an eight-frame hive; but I would not want a fixed or spaced frame for that purpose, as it would then have the same objection as ten frames in a 10-frame hive, which is that they soon become too close a fit. I would use an unspaced frame. I doubt whether the brood gained would offset the disadvantage of using unspaced frames. As the 300 hives above mentioned are an odd size, I now use extracting-bodies over regular Langstroth combs.

East Syracuse, N. Y., Oct. 23.

F. W. LESSER.

Substituting Burlap Mats for Hive-covers in Cellars.

I have a cellar under my residence, 13 x 13, 8 feet high, with double frost-proof walls on the west and south sides, a lath-and-plaster partition on the east side, next to my furnace-room, and a matched-board partition on the north side next to my vegetable-cellar. I have 25 colonies to put in this cellar. The chimney to which my furnace is attached starts from the floor in one corner of the cellar. The floor is of cement, and the cellar is always dry, with a temperature about 45; but my bees have always suffered from a lack of ventilation, so I am going to try the following plan:

I will cut a hole in the chimney, which is on the east side of the cellar, and put in a small outside ventilator through the boarded-up window on the west side; and when I put my bees in, raise the hives from the bottom-boards, remove the enamelled cloth and covers, and put in their place burlap mats doubled. Do you think this plan will give the desired results?

Elroy, Wis., Oct. 3.

CHAS. SHELDON.

[We believe you will secure, without trouble, the results you desire. It is possible that you would not need to remove the covers. Would it not be

better to leave the covers on as they are now, and simply remove the bottom-board? Then, later, if the bees should get uneasy you could take the covers off any time, and substitute the burlap.—ED.]

Attention, Iowa Bee-keepers.

It has become apparent that the bee-keepers of Iowa can not expect much consideration from the legislature, without organization. Two years ago last winter a law was passed providing for inspection, but no appropriation was made to cover the expenses of the newly created office of bee-inspector. The Governor declined, of course, to appoint an inspector with no provision for his salary and expenses, as he could accomplish nothing. Last winter we expected that an appropriation would be made; but though a bill was introduced, and passed one branch, it was put to sleep in the other. It now seems advisable to make an attempt to organize the bee-keepers of the State into a society in order that all matters of mutual interest may receive proper attention.

The problem now is, how to reach all the bee-keepers of the State; and it seems that there is but one way, and that through the columns of the bee-journals. I should be glad if all bee-keepers in favor of organizing, who could meet in Des Moines some time during December, would write me at Atlantic, Iowa. I should be glad, also, if those who will prepare papers for the program would advise me what subjects they will handle. Of course no attempt will be made to organize unless there seems to be considerable interest among the bee-keepers of the State.

Atlantic, Ia., Sept. 19.

FRANK C. PELLET.

Combs Not in a Hive this Summer Destroyed by Moths.

Stray Straw p. 582, Oct. 1. Four combs in a super in my workshop, which had not been on a hive this summer, were destroyed by moths this fall. I handled every comb singly in midsummer, and they were entirely free from moths at that time.

A SURE CASE OF BEES STEALING EGGS.

One of my hives, at the end of a row, 18 inches from the next hive, was found to be without queen, brood, or eggs. It was left from ten days to two weeks, waiting for some young queens which were to hatch. When I opened the hive to give the new queen to the bees I found three queen-cells sealed. I think they must have stolen those eggs, as there was no other sign of brood of any kind.

SMOKE KILLS THE ODOR OF BEE-STING POISON.

Regarding the article by O. B. Metcalfe, page 557, Sept. 15, I find that the odor of the sting on my hand is killed by smoking the spot strongly. After doing so I can put my hand down among the bees without exciting them in the least.

Frankfort, Kan.

REV. L. P. HOLMES.

Introducing by Giving the New Queen the Scent of the Old One.

While talking to a bee-keeping friend the other day he told me of his plan of introducing queens. It is as follows: Go to the colony to which the new queen is to be introduced, and find the old queen. Mash her on the wire cloth of the cage containing the new queen; then put the cage in the hive, and leave it alone for five days. He says he has never lost a queen by this method. The bees recognize the odor of the old queen on the cage, and accept the new one without hesitation. I should like to know what you think about it.

Rapidan, Va., Oct. 2.

G. H. LATHAM.

Not Much (?) Honey in Georgia.

I am sorry to learn that so many bee-keepers report a failure in the 1911 honey crop. It will most surely bring about a lot of discouragement, and cast a gloom over our business. We don't get very much honey in Georgia; but we always get that "little." I got 31,600 lbs., which netted me 8½ cts. I shall get about 20,000 lbs. of section honey in Florida, and no feeding has been done except a few barrels of chinkapin honey.

Cordele, Ga., Sept. 29.

J. J. WILDER.

Our Homes

A. I. ROOT.

And I will make thee exceeding fruitful, and I will make nations of thee, and kings shall come out of thee.—GEN. 17:6.

My Home paper for August 15, as a matter of course, elicited a great amount of discussion. There were many encouraging words in regard to it, and also some severe protests at the course I there outlined. One good friend went so far as to say that my doctrine, if carried out, would eventually kill off all the world except *A. I. Root* and his family. When dictating the article it occurred to me that some might be unkind enough to put some such construction upon it; but God knows, and the most of my readers know, I am sure, that my aim has been to exalt the Lord Jesus Christ and him *only*, and most certainly *not* the poor stumbling and blundering individual who stands in my shoes. The *objections* to that Home paper were mostly written with a lead pencil, with poor spelling, and other indications that the writers were not very well informed as to what is going on throughout our great nation. The *encouraging* words came almost invariably from well-informed Christian people and friends of humanity. I have room for only one which I give below:

Mr. A. I. Root.—I want to cheer you on the article on degenerates. The noted Harry Thaw left a wake of ruined mechanics' daughters at Pittsburg, and it is now being sought to give him another chance to cause heartaches. Such a law as you plead for, I have been advocating for many years. I would go one step further than you, and apply it as a punishment for seduction and habitual vagrancy. Had we a law in the South giving such a punishment for vagrancy there would be fewer idle louts fed by the stealings from the whites' tables; and by limiting the propagating of the race to the industrious, the uplift would not be so discouraging.

Again, the greatest evil in the saloon was the wine-room, and that has been merely transferred to the soft-drink stand with its half-secluded nooks and its waiters, often mere boys, having access to the most dangerous of drugs. A judge of the Court of Criminal Correction in St. Louis told me he believed more girls were being ruined in the "parlors" than ever were in the wine-rooms.

I have noted with pleasure the good work in Ohio, and should like to see it spread. In this State and Mississippi the law seems largely used as a means of graft. It is almost a rule that the night police in the dry cities make bootlegging a part of their income.

Well, may a better day be ahead of us. May we be able to overcome the greater wrongs, those which ruin the youth, destroy the home, and will eventually ruin the nation.

Nashville, Ark., Aug. 19. A. M. VANAUKEN.

In that August paper I had in mind the "Jukes family," but I did not have any particulars then at hand. Since then a kind friend has handed me several pages from *Pierson's Magazine* for November, 1909, containing an article headed "Hereditary Criminals," written by Judge Warren W. Foster, Senior Judge of the Court of General Sessions of the Peace of the County of New York. The vast criminal administration of New York falls chiefly to this court, and no man in America knows criminals better than does Judge Foster. I make a few extracts from his article as follows:

Two of his sons married two out of five, more or less, illegitimate sisters. These sisters were the "Jukes." The descendants of these five sisters have been carefully traced through five subsequent generations, the number of individuals thus traced being 709. The real aggregate of this progeny is probably 1200. This family, while it has included a certain portion of honest workers, has been, on the whole, a family of criminals and prostitutes, of vagabonds and paupers. Not 20 of the men were skilled workers; and of these, 10 learned their trade in prison, while 180 received outdoor relief to the extent of an aggregate of 800 years. Of the 709 there were 76 criminals. Of the females more than half were prostitutes (52.40 per cent; the normal average has been estimated at 1.66 per cent), and the learned author estimates that, during this period, the "Jukes" family cost the State a million and a quarter of dollars, without taking into consideration the awful legacy of crime and criminals which they also left behind them. Nothing more instructive in criminal heredity has been published as the history of "The Jukes."

In connection with the above I also quote the following:

The question of heredity has been further reduced to cold statistics by Professor Poellmann, of the University of Bonn, in his investigation of the descendants of a confirmed female drunkard who died early in the nineteenth century. The fifth or sixth generation of her posterity numbered 834 persons. Of these, the records of 709 have been ascertained, and, of them, 107 were of illegitimate birth, 162 were professional beggars, 64 were inmates of almshouses, 181 were prostitutes, 76 were convicted of serious crimes, and 7 were condemned for murder. The total cost to the state of caring for this woman's pauper offspring and punishing her criminal progeny, together with the amount privately given in alms and loss through theft, was reckoned at \$1,206,000, or more than \$12,000 a year. This expense has continued and increased, in almost geometrical progression, even unto this day, for the fecundity of the irresponsible is notorious, perhaps because of their irresponsibility. To them children appear to be rather an asset than a liability, if, indeed, they ever give the subject thought.

A further proof of the potency of heredity is shown by the investigations of the Rev. Dr. Stocker, of Berlin. He traced 834 descendants of two sisters who died in 1825, and found among them 76 who had served 116 years in prisons, 164 prostitutes, 106 illegitimate children, 17 pimps, 142 beggars, and 64 paupers.

Statistics appear to show that Great Britain is, as compared with the other countries of Europe and the rest of the world as well, relatively free from crime, and this comparative freedom has been explained by foreign experts as due to the former frequency of hangings and to the ruthless transportation out of Europe of all convicted of heinous offences, thus eliminating very largely the criminal classes, and putting a stop to the further breeding of criminals by convicts on home soil. It will be remembered that in the eighteenth century, under the English law, there were over one hundred and fifty different offenses for which the penalty of death was ordained by statute. Students of criminology, investigating further, have discovered that in New South Wales, Tasmania, and Western Australia, the penal colonies to which Great Britain transferred her criminals, there is more criminality than in the other ("free") Australian colonies. These sober facts of history thus seem to show that the hereditary criminality which would have increased the crime of to-day in Great Britain, already greatly reduced by the wholesale hanging of felons, has been largely transferred to her penal colonies.

No doubt some of my readers will think that I am dwelling unduly on the dark side of humanity; in fact, I have had that feeling myself, and my conscience has been troubling me; but I "rejoice and am glad" to quote something on the other side from

this same article from which I have been quoting:

JONATHAN EDWARDS AND HIS DESCENDANTS.

By way of contrast, a similar research has been made into the history of the famous Edwards family, of New England. This family, descended from strong religious ancestors, embraced many of the distinguished characters of our national history, and all of them were upright and useful citizens.

Jonathan Edwards was born in East Windsor, Conn., in 1703; 1394 of his descendants were identified in 1900, of whom 295 were college graduates; 13, presidents of our greatest colleges; 65, professors in colleges, besides many principals of other important educational institutions; 60, physicians, many of whom were eminent; 100 and more, clergymen, missionaries, or theological professors; 75 were officers in the army and navy; 69, prominent authors and writers, by whom 135 books of merit were written and published, and 18 important periodicals edited; 33, American States and several foreign countries, and 92 American cities and many foreign cities, have profited by the beneficent influence of their eminent activity; 100 and more were lawyers, of whom one was our most eminent professor of law; 30 were judges; 80 held public office, of whom one was Vice-president of the United States; 3 were United States senators; several were governors, members of Congress, framers of State constitutions, mayors of cities, and ministers to foreign courts; one was president of the Pacific Mail Steamship Company; 15 railroads, many banks, insurance companies, and large industrial enterprises have been indebted to their management. Almost if not every department of social progress and of the public weal has felt the impulse of this healthy and long-lived family. It is not known that any one of them was ever convicted of crime.

The comparison of these two families, the "Jukes" and the Edwards, to be found in Boies' "Science of Penology," forms a most striking instance of the strength of heredity in perpetuating ancestral traits, both virtuous and criminal.

May God be praised that such a man as Jonathan Edwards ever lived, and that he was enabled to bless the world with a large family of children, grandchildren, and great-grandchildren, and so on down.

The above illustrations, are not singular nor the exception. Look about you and you will see the same thing going on in every community and neighborhood. At the present time, however, I am sorry to note that our educated, intelligent, and Christian people are having only small families—one child, two, and sometimes three—while the drinking and ignorant man, next door, perhaps, is blasting the life and happiness of the poor wife by obliging her to bear a dozen children and sometimes more. Mind you, I do not object to large families. A man and woman in good health, living outdoors, may, perhaps, give life and health to ten or perhaps a dozen children. The celebrated Benjamin Franklin says he was one of seventeen children. The protest that I make is against letting the ignorant and vicious and half-witted ones people the earth with creatures of their kind, and burden our Christian people with the task of building asylums, jails, and penitentiaries to care for these degenerates. Let me remind you once more of what is being done with criminals.

Friend Leonard has made the discovery, or at least he thinks he has, by which he can pick out from a flock the hens that lay toward 200 eggs a year, or probably more than that. Let us suppose it is true (although it has not yet been fully proven), that the hen that lays two eggs and then

skips a day is the one that will probably furnish a large quantity of eggs in a year, and belongs to a strain of fowls that is desirable. Every one of these 200 eggs this hen lays can be put in an incubator or under hens, and in this manner we shall be rearing all or nearly all valuable fowls. The loafers that lay once a week or less, and the hen that is said to be found in every farmyard that never lays *at all*, although they are kept year after year, will be eliminated. This will be a great gain. The person who is the possessor of a pen of choice prolific layers can make money right along, for he does not have to board and lodge useless drones. I have told you several times of what is being accomplished in selecting seed corn. The world is making wonderful strides in furnishing good wholesome food at a more rapid rate on a given area of ground than ever before; but in the case of breeding (if I may be excused for using the term) bright boys and girls to bless the world, nothing, comparatively, is being done at all. Indiana has made a start, it is true; but it is only a drop in the bucket thus far.*

Let us take another glimpse of the affairs of our State and nation. Texas voted wet by a small majority, just because there were more patrons of the slums and saloons than there were good people. Maine has met almost a similar fate. As I write, it appears that Maine really went dry; but the dries were honest and fair in their election, while the wets hesitated at nothing, for they fear neither God, man, nor Satan. Their sole object and aim, as they virtually admit, is to *make money*. They do not care *how* they get it, if they only *can* get it out of the pockets of their fellow-men. Now, Maine as well as Texas is cursed with too many enemies of all righteousness. We can scarcely hope to outnumber them or make them obey our good and righteous laws if we let this thing I have been talking about go on. The editor of our *Medina Gazette* (who was one of my Sunday-school pupils years ago), just told me that this matter I am urging should be put before our legislature at Columbus, and that our State of Ohio should be vehemently urged to follow Indiana in restraining the birth-rate of "undesirable citizens." Almost as I dictate these words I am told that two counties in Ohio bordering on the Ohio River—counties that have been dry—have voted wet. The W. C. T. U. has just had an enthusiastic meeting at Portsmouth, Scioto Co., Ohio.†

*After dictating the above I found in a recent copy of the *Plain Dealer* an account of the meeting of the reformatory judges of the different States recently held. See the following:

"Dr. H. C. Sharp, of the Indiana State reformatory, gave a vivid account of good resulting from sterilization of imbeciles and degenerates. Dr. Sharp declared that he is using the method in private practice. This was another reform which did not escape from an Ohio legislative committee last winter."

†Judge Blair, who made his name famous for rebuking and punishing the buying and selling of votes in Adams Co., Ohio, also worked tremendously to keep Scioto Co. dry.

The Sunday-schools and churches have been massing their energies, and working heroically; but the liquor men have beaten them. The hordes of degenerates that these southern counties have been producing in years past outnumber the good people. (Of course, they will die off after a while—in fact, they are dying faster than the abstainers.) But if this work is permitted to go on, if children are to be born because their fathers were too drunk to be any thing but animals (or not even that much) previous to conception, what kind of human beings are to be expected as the outcome? May God help us in this new warfare. In the first part of our text we are told the promise was given to Abram that he should be the father of a great nation—that kings should be among his descendants. The great Father of this whole universe in its infancy selected a stock with which to people the earth. Shall not we, in like manner, in this present century, take measures to people the earth with *godly* children rather than with *ungodly*?

MY APPLE STORY, AND—SOME OTHER THINGS.

Let me explain first that our five children are all married, and their homes are close by the paternal mansion. Through a kind Providence these homes all contain little prattlers, more or less; and it just now occurs to me that, before I get to my apple story, there is something else I want to mention. In one of father Langstroth's axioms in his old original book on the honey-bee he says, in substance, there can be no *real* prosperity of any colony of bees without frequent accessions of *young bees*.

Well, just two days after the golden wedding I have told you about, a telephone call announced that Mrs. Root was wanted at the home of her youngest daughter, Mrs. L. W. Boyden. The call came a little before daylight. Mrs. Root sprang out of bed hastily, saying, "I know what it is." In a short time she rushed back home, her face beaming with smiles, and announced that little "Elizabeth Maud" was safely ferried over the mystic river and landed in one of the five homes close by. There are now five children and ten grandchildren—five boys and five girls. May God help us, each and all, to recognize the sacred responsibility that rests on us as parents and grandparents. And now I am ready to take up my apple story—apples sure, and no mistake. The old home embraces an orchard of about forty trees; and this year the early apples *especially* gave a bountiful crop. When apples got to be quite plentiful I admonished the five children, and sons-in-law and daughters-in-law, not to buy any apples from anybody, for we had Yellow Transparent, Maiden's Blush, Gravenstein, and Ramboes and Fall Pippins going to waste, and I wanted them to be sure to use up *our* apples without buying off the wagons that come along almost every day wanting to sell apples. In spite of my caution, how-

ever, every little while some of the children would be buying apples. They gave as an excuse that they felt sorry for the women who lugged the apples around, and they "looked so tempting," etc. Well, I carried around some of our nice apples to the five homes, and enjoined them again to 'help use up the apples that were going to waste. Finally some one told me that Blue Eyes had been buying some more early apples of a woman. I rushed over to assure her again that we could not get rid of what we had. She did not seem at all disturbed, however; in fact, her eyes were dancing with merriment in spite of my scolding. When a pause came, she brought out a peck basket of apples where I could see them, and laughed outright when she saw me hold up my hands in surprise. Nowonder. I do believe that that peck of little apples was the handsomest and most tempting looking of any thing of the kind my eyes ever alighted on. First, the little beauties were covered with brilliant white and black streaks. Then there were little stars—yes, *real* stars—all over the surface of the apple. After I had stopped scolding, and had begun to look happy, she said, "Now, father, just taste one." I took one bite and then ejaculated, "Did you ever? Where is the woman? has she sold out her load?" As there were children and grandchildren standing around they had a big laugh to see the joke put up on father, and to see him change his tune, and wheel about so suddenly. The woman had sold out, and no wonder. Everybody who looked at the apples bought some, and when they tasted them they bought more. She said they were called "Early Spies;" but as I had never heard of any Spy apple except the Northern Spy I thought it could not be the correct name; and yet I felt sure that such a beautiful and delicious apple must *have* a name. I put some in my pocket and went over to see my friend E. C. Green, who has for many years, as I have explained, been connected with our Ohio Experiment Station. He said right away that his brother, a nurseryman, had the same apple, and called it "Early Joe." I asked if it was known in pomological circles, and he said he rather thought not. He did not think it was mentioned in any of the catalogs. Since then I have had the matter in mind, and have been planning to write up the Early Joe. Imagine, therefore, my "happy surprise" in finding it described in a late number of the *Country Gentleman*, and by perhaps the best authority on apples we have in our country. I clip the following from an article discussing our best fruits:

Early Joe is one of the most satisfactory of the second-early apples for home use. It ripens very gradually, and can be used for cooking before it is full grown. The size is small, its color is pale yellowish, with red stripes and distinct lighter dots and tinted shadings. It is of a mild, subacid flavor, peculiar and rich.—*Prof. H. E. Van de Man.*

This little apple is literally "bursting full" of delicious juice. It makes a crisp rattle in the mouth—in short, it is just the

kind of apple to make a schoolboy rejoice, especially if he can get enough of them to fill all his pockets. I do not know where the Early Joe can be obtained. Mr. Green said his brother had a few trees, and I have spoken for half a dozen for our children. If any of the nurserymen whose eyes meet this have the Early Joe for sale I will give them a free notice of it in these columns, providing, of course, it is offered at a reasonable price. May God be praised for that little Early Joe apple.

MNEMONICS, OR AIDS TO MEMORY, ETC.
MEMORY "CORRESPONDENCE
SCHOOLS," ETC.

Some time ago I spoke of my failing memory as age advances, and I gave you some illustrations. Since that, as a matter of course, I have been looking out for advertisements and every thing else to assist the memory. On page 544, Sept. 1, I spoke about the \$25.00 correspondence school for the memory, and my warning seemed a timely one. One good friend, however, had invested \$10.00 before he saw my caution. He thought a jump from \$25.00 down to \$10.00 was worth taking advantage of. What he received for his \$10.00 was ten little books or paper pamphlets of perhaps a dozen pages each. Twenty-five cents would have been a big price for all the printed matter. While there is much in it that is good and no doubt valuable (as there is in almost any book), it is a great outrage to ask one to pay even \$5.00 for it. In glancing over it hastily, I find nothing in it particularly new. It is in line with suggestions to help memory to grasp things quickly. Let me give you a simple illustration that may be helpful. When I first moved to our Florida home, of course I wanted to get acquainted with the neighbors; and as their names were strange and sometimes peculiar I was telling my troubles at neighbor Rood's. A bright young lady, Mr. Rood's daughter, took me in hand and gave me a little memory drill. She spoke something as follows: "Mr. Root, I will tell you how to remember folks. You were surprised when Mr. Armstrong lifted your trunk out of his wagon without any assistance. He certainly has strong arms for a man of his age. Now just recall the trunk episode when you want to think of his name. And that other man, Mr. Amlong, who is quite tall, when you can not recall his name, remember he could very consistently say, 'I am-long,' for that is his name." Then she named several more neighbors on the street in a similar way; and from that time to this I can always call them by name at once. I think it is done by the association of ideas, part by "suggestion," as the memory folks call it. Now another way: Few people can remember which months have 30 days and which have 31. In my childhood somebody taught me the little stanza below, and from that time to this I can tell instantly which months have only 30 days.

Thirty days hath September,
April, June, and November;
All the rest have thirty-one,
Save February, which alone
Hath twenty-eight; and one day more
We add to it one year in four.

Now, I have stored away in memory's pigeon-holes, ready for use, a great number of names, facts, dates, etc., that I recall in just that way. For instance, for a long time I had a great deal of trouble in recalling the name of the beautiful and delicious Gravenstein apple. Finally I told myself that I must think first of Gravenhorst, the great teacher in bee culture; and then I was to think of the word "stein," which is the German word for stone. In the same way the name of the Northern Spy would get away from me; but to catch on I had only to recall a little incident that happened several years ago. A woman across the way kept a boarding-house, and occasionally sold liquor on the sly. The Anti-saloon League detectives went there one day to purchase. But the lady of the house was suspicious of them, and called them "spies." So when I want to think of that beautiful apple with greenish-red streaks I think of the detectives who were called "spies." Of course you can keep a memorandum-book; but an alert and trained brain is better than all the books, and it improves by use. Perhaps I might suggest that in old age we should avoid loading down either brain or body with too much or too many burdens. I am getting on very well nowadays by pushing away a great multitude of things I should like to take up if my busy life would permit. I keep saying I am going to do a few things, and do them thoroughly and well; and the world must excuse me if I persistently hold fast to the course I have laid out.

DRAGON-FLIES, MOSQUITO-HAWKS, "SNAKE-FEEDERS," "SNAKE-DOCTORS," ETC.

I was out in the yard the other day watching my bees fly to and from the hives, and a snake-feeder, or dragon-fly, sat upon a telephone wire close to the hives. This snake-doctor would catch a bee, make it drop its load, and then turn it loose. I watched this insect for 15 or 20 minutes, and it was quite easy for him to catch a bee both coming and going from the hive but would let it go again. I wondered if the bee stung the fly or if he was after pollen or wished to kill the bee.

Pleasant Hill, Mo., June 1. FRANK A. THOMAS.

Friend T., this insect has been considerably discussed in years past. When I was on the island they came in such droves as to catch a large number of bees, and in queen-rearing time we had great trouble from the loss of young queens, we presumed from the ravages of the mosquito-hawk. I suppose our friends understand that these various names refer to one and the same insect. Our apiarist, Mr. Marchant, tells us that they have at times had much trouble (in his home down in Northwest Florida) during queen-rearing, from this insect. But, fortunately, they are gone in a few days. Some years ago some bee-keeper in the South said he succeeded in driving them away by setting the children after them with whips. I think likely the fly-

killers now for sale in our stores would answer a good purpose. After you have killed a few they will take leave, and I think they are very easily frightened away. Of course,

the loss of a few *bees* does not amount to much; but, like the king-bird, as they generally grab for the largest bee they will probably pick out the drones and queens.

Poultry Department

HINTS TO POULTRY-KEEPERS, FROM THE MAN WHO HAS GIVEN US THE "NEW DISCOVERY."

I am just glancing over the pages of your March 1st issue and would like to comment.

TWENTY-ONE DAYS NOT ALWAYS THE RULE.

People who think chicks should always come out on the 21st day, and then break up the hen, or open, find many dead in shell, which, if left or placed in a machine after the hen had gone off with her chicks, would have hatched later. Two weeks ago a hen abandoned her nest. Eggs were put in the machine, and they have been coming out for the past four days—probably according to the amount of chill each got.

FILLING THE EGG-TRAYS ON THE START WITH THE SMALL END DOWN.

About placing the small end down, I once, in an eight-tray machine, stood 2 traysful on small ends wiggling them a little twice daily. I left them this way, the whole hatch untested—*big* ends always up—and these two trays seemed to beat the others; but I have no figures now. There was not a cripple, and Ertel says cripples come from small end being up.

OVERHEATING, THE CAUSE OF INFERTILE EGGS.

Your lady who bought your Buckeye and eggs, and found 28 infertile, likely overheated at the start. I had a thermometer which was 8 degrees too high, and, though I ran it at 102, I was actually running at 110. Result, every egg tested out clear. It takes a hen one week to heat eggs to the center to 100 degrees: 10 days to 101. The machines heat to 100 at center in 24 hours.

SULPHUR FOR NEWLY HATCHED CHICKS—A CAUTION.

I fed sulphur to one lot of newly hatched for a few feeds, with ground dry food, and then heard that would hurt them, so I stopped. There were 13, and there are now seven, one quite large, and the rest, except one, small, and that one medium. The two larger are the only lively ones. Those that died showed no outward sign. Liver spotted. They went off very quick—weak one day, dead the next. They were on range. No others acted the same. Was it sulphur?

SALT-WATER BATHING A REMEDY FOR REDBUGS.

Thirty years ago I found the remedy for redbugs on my limbs to be to go into the salt water (ocean), and stand in the sun to dry off. I never had any after that, while others scratched their legs raw.

OIL OF TAR FOR SOREHEAD.

Sorehead I have always cured quickly with oil of tar, removing the scab when soft, and applying vaseline. Oil of tar mixed in vaseline will get rid of jiggers.

FIRELESS BROODER—HOW TO MAKE A CHEAP ONE.

Feathers in bagging-down, or mosquito-netting draped over a round form of thick paper felting, with a hole inside, is a very good fireless brooder. St. Augustine, Fla. C. W. LEONARD.

CHICKENS POISONED BY EATING TOADSTOOLS.

Mr. Root:—I had a peculiar thing happen to some chickens which I thought very much of, as they were Barred Plymouth Rocks. As I was working with my bees yesterday two of my little boys came to me with some toadstools and asked me if they were mushrooms. I told them they were not, and to throw them away; but I didn't notice where they threw them. This morning, the 29th, I went to my chicken-yard, and, to my surprise, I found six of my fine chickens dead. I went to the house and asked my wife what she had been feeding the chickens. She said she had given them nothing but cracked corn, so I made an inspection of the

yard and found the boys had thrown the toadstools to the chickens, as the stumps were still there; so I concluded the chickens had been poisoned by eating them. The chickens that were not dead were staggering around the yard like a lot of drunken men. Have you or any readers of GLEANINGS heard of such an occurrence before?

Rhinecliff, N. Y., June 29. PETER WHEELER.

Friend W., I have never heard of any thing like the above before. We have a sort of mushroom in Florida that the chickens eat, and it does them no harm; and my impression is that if these toadstools had not been thrown down and probably broken to pieces the chickens would not have touched them. I formerly supposed that a poison mushroom would not prove palatable. A lady in Michigan, however, was made very sick by just tasting of a poison mushroom, and she assures me that the taste was just like, or very much like, that of the edible mushroom. If this is true, it is not any wonder that the chickens were fooled like human beings. One should be very careful in handling or even throwing away poison toadstools.

INDIAN RUNNER DUCKS; CROWS, ETC.

Mr. Root:—I have noticed so much on the favorable side in the many reports of Indian Runner ducks that I will offer a little discord. Early in 1910 I bought a setting of eggs from a prominent breeder in Massachusetts, but hatched only two ducklings, and these were very weak, and lived only a few hours. I obtained a second setting of 12 eggs, and instructions to sprinkle the eggs slightly a week before due to hatch, and hatched five, all of which lived to maturity—three drakes and two ducks. None of the eggs could be called pure white, and several were decidedly green, but the ducks were handsome fawn and white. They were hatched in June, and one egg was laid in March, and five or six weeks later I sold them in disgust. I sold one of the drakes last fall, and the other two made life miserable for my White Wyandotte hens; and it was this, as well as their lack of egg production, and color of eggs that caused me to go out of the Indian Runner duck business.

You mention using potatoes for feeding chickens, and think it may be necessary to boil them and mix with bran mash in the North. I have not found it so—at least in winter and spring. But I crush them with a mallet or my heel, and find the hens eat them better than mangels or sugar beets. I save all small and scabby potatoes for my hens, you may be certain, and believe them more succulent, and better for them, than if they were boiled.

Your sympathy for crows I deem misplaced. They are a great curse in this section, and yet from reports I judge they are far more abundant in other parts of New England. One of my neighbors, a man of good judgment, says corn is damaged on an average fully five dollars per acre by crows; and if we count the time spent in hunting them, the twine used to frighten them, the poison and loss of sleep, the estimate should be much higher. And if we add the many other indictments that may be justly made, the account is decidedly against the crow. It is well known that crows eat the young and eggs of nearly all other birds, including domestic fowls. A grower of poultry on a large scale near here last year estimated that fully one-fourth of his young chicks were carried away by crows, and my nearest neighbor lost many. They are far

worse than hawks here. I am a lover of birds, and have put up boxes for their nesting for nearly half a century, and my love for good birds is too great for me to love crows also. In my opinion, bird-lovers should exercise discrimination; but this is just what lovers are little inclined to do, love being blind. I lived in Iowa and Ohio before coming here, and it is strange to me that the farmers of New England should suffer a yearly tax and great annoyance when probably one year's loss would, if offered as a liberal bounty, exterminate the crows.

I have little doubt that crows do much good by destroying insects injurious to crops; but other birds, the lives of which would be spared by killing the crows, would do this work far more effectively, and be a pleasure and joy for ever while doing it, instead of a curse and aggravation as the crow now is. All corn scattered on fields to prevent crows pulling should be soaked and softened or they will not eat it, and will pull the soft grain from under ground.

Packerville, Conn.

E. P. ROBINSON.

Health Notes

TERRY'S WHEAT COFFEE—HOW TO MAKE IT.

So many have asked me for explicit directions for making Terry's wheat coffee since our remarks in regard to it in Health Notes for August that we have decided to give it in full as it appeared in the *Practical Farmer* for Jan. 28; and I want to say I very much prefer it to any real coffee. It agrees with my health, and it agrees with my conscience; for one who drinks it can rest assured that there is nourishment but no stimulant about it. Here, we prefer honey in place of molasses.

OUR WHEAT DRINK—26 CUPS OF COFFEE FOR A CENT.

J. L. Long, of Yackinville, N. C., asks that full directions be given again for roasting the wheat and making our "wheat coffee." Not long ago I made a fire in our range one cold morning. An oil-stove fire is not hot enough. I put 5 quarts of wheat into two iron dripping-pans, half in each one, and then placed them in the oven. These pans are 9 x 15 in., and 2½ in. deep. When the wheat was hot enough to begin to roast I opened the oven-door and stirred it quickly with a large iron spoon every minute and a half by my watch. I put on thick gloves to protect my hands. Great care was taken not to let the wheat burn at all. When it is burning, it smokes; when roasting properly, it does not smoke. When the wheat was roasted real brown—almost black—I put two teaspoonfuls of New Orleans molasses and a heaping teaspoonful of butter to each quart of grain, and stirred well. Then it was put back in the oven, and roasted and stirred as before for 15 or 20 minutes. I let the oven get slightly cooler, as it burns more readily after molasses and butter are added. When it is done, the molasses has gone into the wheat. The butter prevents the wheat sticking together much.

It should be dark and rich in color—almost black—remember. I left it in the pans until cool. It is all in one cake then, but is readily broken up fine with the hands. Better rub it until no grains stick together. After that it will not cake. It was put into fruit-jars, sealed up, and stored in a cool spot. I would not make as much at once in hot weather. The bulk is increased by roasting. Five quarts of wheat made six quarts.

Now, the above is a job that should be done with care if you want perfect results. We use a heaping teaspoonful for two cups of drink. This makes it as strong as we like it. Allow a little water for boiling away. We measure it before grinding, and then grind fine. If the mill gums up after a time, pour boiling water through it. The drink is best made in a percolator. It should be made to pump or boil in the percolator 20 to 30 minutes, until it has a dark rich color, the same as the best coffee. If it does not have this color, and the flavor is lacking, it was not roasted or boiled enough. Use sugar and cream to your liking. Drink moderately at any meal, in small sips, if you want to, so long as you have no food in your mouth. It is well to take it with a teaspoon.

Do not use it to wash down food, and it will be wholesome and slightly nutritious. It has come to stay at our house. I like it very much. We use nice plump wheat of our own raising, cleaned as for seed. The cost of this "coffee" is about 3 cents a pound for the materials. The cost of the fire was nothing, as it helped to warm the house. Two and

a half teaspoonfuls weigh one ounce—enough for 5 cups. A pound makes 80 cups, and costs 3 cents. Let them put up the price of coffee—we don't care. If you were to come here and not know any thing about it you would hardly suspect that you were not drinking real coffee. I have drank much coffee at hotels that was not as good. But the saving in cost is not worth considering by the side of the benefit to health. Every cup of coffee you drink, as ordinarily made, is putting as much poisonous caffeine into your blood as doctors give for a dose of medicine. This poison helps to bring on several troubles, such as rheumatism, hardening of arteries, etc. Terry's "wheat drink" is absolutely free from any thing that can harm you, and contains a little real food. He could make a fortune by advertising heavily and putting it up in paper boxes at 25 cents each. Are you tired of drinking so much water? Take part of it in this wheat drink at meal times, and enjoy it as we do.

"UNCOOKED" CORN AS WELL AS UNCOOKED WHEAT.

I have Terry's book, and I think it is the best one I have on that subject. I have been cured of what is called Bright's disease, and others, by natural living. My principal diet now is raw whole wheat (dry kernels), nuts, and fruit. As a test I have lived for many days on dry field corn and water, with the best results. It cost me about a cent a day to live. I have won some great victories over Satan on the power of appetite, and have overcome some passions to which I was once a slave. I intend to devote my life to missionary work in some way. I have been much helped by what I have read in GLEANINGS.

Silverhill, Ala., Sept. 8.

P. W. PAULSON.

"ROASTED CHESTNUTS."

For some little time back I have been made happy by the abundance of my favorite nut, the chestnut. At our golden wedding, the children were discussing what they would give me for a present. Somebody suggested a "gold-mounted meerschbaum pipe;" but if I remember correctly, several of my good friends thought it would not be just the thing for A. I. Root, and so they finally gave him a bagful of brown chestnuts, as they were then just coming into market. Nothing in the whole realm of presents could have pleased me more, and I have them now both for breakfast and dinner. My supper is still beautiful luscious apples. The reason why I mention chestnuts is that there seems to be a great crop this year. The Morganthaler Co., of 635 Broadway, Cleveland, have just sent me a quotation that reads, "Chestnuts are dull at 4 to 5 cts. per lb." Of course, the above is wholesale. The retail price is probably more. I still think they are one of the most healthful and delicious foods that the kind Father has provided for the children he loves. I am taking quite a bagful down to my Florida home.

Temperance

THE BREWERS' INDUSTRY OFFICIALLY RECOGNIZED; SEE PAGE 544, SEPT. 1, AND PAGE 610, OCT. 1.

In spite of the tremendous protests from all parts of our land, Secretary Wilson pushed ahead and delivered his address. As we go to press the papers are full of it, and we have room for only the following extracts from quite a lengthy article in the *Farmer and Stockman*, of Des Moines, Ia.

Notwithstanding the protests of thousands upon thousands of Christian men and women, Secretary James Wilson, of the Department of Agriculture, has accepted the honorary presidency of the Brewers' National Association, has delivered an address at the international convention in session in Chicago, and is hobnobbing with men (to quote the resolution of protest adopted by the Ministerial Association of Des Moines, Iowa): "Whose business debases morals, corrupts men and women, and robs children of the parental protection which is their due." Secretary Wilson has persisted in taking this action against the advice of personal friends and leading church-workers throughout the entire country, regardless of denominationalism. Nor did they confine their attention solely to the eminent Secretary of Agriculture, for there is a general belief that the real culprit is President Taft, and that the real reason of Secretary Wilson's actions is, as one Chicago pastor explained to his congregation in the course of his sermon, "a play on the part of the administration for the support of the brewers."

Secretary Wilson is thus left stranded high and dry without even the tentative noncommittal defense which he has attempted to foist upon the public in explanation of an action which he, as a product of a good old Scotch Covenant family, and himself a prominent member of the Presbyterian Church, must in his heart of hearts have realized from the very beginning was not only an official recognition of a pernicious business which traffics in human souls, but an affront to decency and a setback to good government.

May God be praised for the clean and high moral tone of the agricultural press of our land.

TEMPERANCE, RELIGION, ETC.

I like GLEANINGS first rate. It is a good bee-journal, and helps me in some ways. I can see the different ideas bee-keepers have; but I don't think there is much sense in *Our Homes* and the temperance page. It will only make more fools in this world. Your journal should be free from politics, religion, and temperance, so everybody could read it, "wet" or "dry," Jew, Christian, or Turk. Excuse me, I am an old German, without an English education, and have probably other ideas than yours. Still, it won't hurt you to know what folks from a not free country think of your free country. Conneaut, O., Sept. 18. C. KLABUHN.

Thank you, my good German friend, for your outspoken and honest criticism. My impression is that you have not been in our country long enough to get acquainted with our good people—especially our Christian people. We may differ in our idea of religion; but, friend K., I think all humanity and all nations love honesty and truth. If what you have seen of religion has not meant an honest and square deal, I am afraid you have not seen the genuine thing. And in regard to temperance, if you will visit our saloons, especially those in the great cities, where gambling and crime and the ruin of our boys and girls are going on, I think you will agree with the good people

who are united just now to put a stop to these evils. It certainly is a grand thing to live in a free country; but the kind of freedom that you would permit, and allow our just and righteous laws to be trampled under foot, is certainly not the kind you would indorse; and I am sure, my good friend, that you yourself would not want to live in a country where there is no law, or where the laws are not enforced.

If you and I were next-door neighbors, we should be excellent friends, even though we might disagree in some things. With the chickens and gardening and bees we could find a common ground where we would think alike.

To illustrate how differently people look at things I will give you a glimpse of another letter that was put into my hands together with yours. I confess it seems a little extravagant, and I should not have used it for print had it not been to show the contrast.

Mr. Root:—Your journal has been both helpful and interesting, and I can hardly wait till it comes. I like to read *Our Homes*, *Temperance*, and *Travels*. Your views are as nearly correct as they could be for a human being. Write more on the above subjects. You will not tire good people, and it doesn't make any difference if sorry people do get tired of them. Just keep the good work going, and may God give you ample reward. I wish there were 10,000 men like you in our country. Long live A. I. Root.

New Light, La., Oct. 11.

CARL LEWIS.

May I say just a word to our dear friends who will be likely, as I know by experience, to write to our friend who wrote the first letter? Whatever you say to him, dear brothers and sisters, please keep in mind he is a comparative stranger in our land. He is a guest of ours, and should be treated with courtesy and respect, no matter if he differs widely from some of us. Remember what I said a little while back about entertaining angels unaware.

A TEMPERANCE TALK AND SOME WISE SUGGESTIONS BY THE EDITOR OF THE AMERICAN BEE JOURNAL.

Dear Bro. Root:—I have read with a great deal of interest your last "sermon," on pages 410 and 411, July 1. I notice that you have put it in pamphlet form, and will send copies for distribution. You might send me 25 copies, and I will try to place them where they will do some good.

For a long time I have been thinking that the temperance women of our country might do a great deal more toward the overthrow of the liquor-traffic if they would clip out from the newspapers all items that give the results of drink. There are a great many accounts of such results, and many cases where husbands abuse their wives and families, etc. Now, my idea would be to have the women cut out these items and mail them to the wives of the saloon-keepers and brewers, calling their attention to the results of the business their husbands are in, and asking them to try to persuade them to get out of such a damnable business. Of course, these letters should be written in a sisterly way, and not be in the least offensive. They must not be too strong, so as to anger. I am persuaded that, by the time Mrs. "Brewer" Busch begins to get about 500 such letters her "crown of diamonds" would rest rather uneasy on her head. I believe that wives of the saloon-keepers and brewers would soon have no rest themselves, and cer-

tainly would give their husbands no rest until they gave up the miserable business.

I think there would be no trouble for the W. C. T. U. to secure a list of the names and addresses of practically all the brewers, distillers, etc., in this country. And no doubt the good women of this country would be able to find plenty of such names and addresses right in their own towns and cities. For instance, we have over 7000 saloons in Chicago. Nearly all of them have telephones, so their names and addresses are in the telephone-books. Now, if the good women of Chicago would clip from the daily newspapers all the heart-rending items that are published as the result of drink, and send them to the wives of the saloon-keepers, with tender touching letters, calling their attention to the awful result of the business their husbands are in, I believe that they would so get after those husbands that they would soon begin to get out of such a wicked business. What do you think of this scheme? I have thought about it for nearly a year, and was going to present it to the W. C. T. U. with the suggestion that they try it and see what the result will be. I think if every saloon-keeper's wife could have a copy of your booklet it would have a good effect. It ought to place upon the heads of those engaged in the drink-traffic such a burden, such a sense of the awfulness of the drink traffic, that their sense of shame and honor (if they have any left) would cause them to turn to some other business. Mr. Hallock certainly got off a good thing in that paragraph referring to the brewer's wife's crown of diamonds, etc.

I have just been wondering whether the leading brewers have ever been talked to by the preachers and the best men in the city, where they operate their breweries. I don't believe that J. Wilbur Chapman, when he was in Chicago, even thought of attempting to convert Mayor Busse. It seems to me that every preacher in Chicago or in any other city ought to begin at the top, for the example that is set by those in authority goes a long way in almost any thing.

Chicago, Ill., July 8.

GEORGE W. YORK.

CARRIE NATION, ETC.

Dear Mr. Root.—I have been trying for several weeks to write and thank you for what you wrote about Carrie Nation. In this imperfect world there are no saints; but Mrs. Nation struck her blows at the evil she saw. You seem to have an erroneous idea about her getting into jail. It was not for destroying liquor. That is contraband in Kansas; but when she broke windows and destroyed furniture she violated property rights.

Perhaps you do not know that in a city in this State, where she lived, Eureka Springs, the laws relating to fornication punish the man and not the prostitute. Last summer three men were serving jail sentences for being inmates of houses of prostitution as visitors. I can not help believing we could accomplish something in stopping liquor if we punished the buyer instead of the one who supplies him.

Nashville, Ark., Oct. 26.

A. M. VANAUKEN.

Special Notices

By A. I. Root

In my column of special notices, last issue, I asked for an offer on toward \$500 worth of Conkey's standard poultry remedies. At the present writing, Nov. 6, no offer has come in; and if we do not get any better offer, whoever speaks first can have the whole lot for \$100, even. The remedies are all good, so far as I know; in fact, if they are not as represented they will not cost you any thing. In making this offer I had a curiosity to know how much faith poultrymen generally have in prepared remedies.

"A GLORIOUS VICTORY."

The above is the title of a little tract of four pages that our good brother R. F. Holtermann, of Brantford, Ont., is sending out free of charge. It is such a beautiful story that I would gladly give it space in our Home papers were it not for the great amount of matter that is already crowding for a place to be heard. If you are discouraged or downhearted—if you are afflicted with an incurable disease, or if you are troubled in any way, send for friend H.'s little tract. It not only opens the way

for a "glorious victory" here on earth, but for a victory that goes beyond the grave.

OUR NEW A B C OF POTATO CULTURE.

This book is finally off the press; but I have made so many additions to it that it was clear up into November before it was done. There are about 100 pages of new matter and quite a number of new engravings. I worked hard for three or four months in trying to have our potato-book clear up to date. It contains 380 pages, so it is nearly a 400-page book as you will notice; and there are 40 engravings, the greater part of them new. In compiling the book I consulted our leading potato-growers, called on our Ohio Experiment Station several times, and now the book not only includes potato-growing in the Northern States but in Florida, Bermuda, and the Isle of Jersey; also something about growing potatoes under glass. It tells how to grow potatoes for 75 cents a bushel as well as when they are 75 cts. a peck in the market. As I have said before, a careful look through this potato-book will help you in growing almost any kind of farm crop. In getting material for it I scanned carefully the leading agricultural papers of our land—not only the reading-pages but the advertisements as well.

Right along in this line I discovered a handy top box with flaring sideboards that can be put on any wagon in an instant. It is pictured and described in this potato-book. You can get particulars of the Lucas Mfg. Co., Slater, Mo., and I think this one thing might be worth the price of the book to anybody who uses any sort of wagon. Although the book is much enlarged, the price is but a little more than that of the old edition. The present price is 50 cts., in paper; by mail, 57; in cloth, 75 cts.; by mail, 85. We will send the paper edition, clubbed with GLEANINGS, for \$1.25 postpaid; the same in cloth, \$1.50.

WHITE INDIAN RUNNER DUCKS; CALLING A PRICE LIST A BOOK, ETC.

You will notice what I have to say about the White Indian Runner ducks in our last issue. Well, they are being extensively boomed just now. They claimed that the white duck that lays the white egg lays ever so many more than the other kind. This may be true; but I do not know how we are to prove it until our experiment stations or some other disinterested party takes it up. You may recall that I have twice, at least, criticised the high prices for the small amount of information contained in the Indian Runner duck-books. A few days ago one of our readers advised me that the Woman's College Poultry Farm, of Meridian, Miss., had put out an Indian Runner duck-book for only ten cents. Now, this commended itself to me in two ways—first, ten cents is enough for a book on these ducks at the present stage—of course I mean for a little book or pamphlet. Second, we usually expect a woman's college to be the next thing to an experiment station in charge of the State. One can not well imagine that the women belonging to a college would be parties to extortion. Well, I sent for this ten-cent duck-book. The very first page was devoted to telling how superior their ducks are to the common run of the Indian Runners. In fact, the writer says there are Indian Runner ducks on the market that do not lay enough to pay for their feed, and every one of the dozen pages in this book is devoted to booming their stock more or less; and right in the middle of the book is a price list which says, "The Fishels are selling White Indian Runner duck eggs for \$10.00 for 12. We charge only \$5.00 for 12, cash with order."

On the back cover there are several questions and answers, and the answers are valuable and probably correct; but many of them are such as might be found in any price list sent out free of charge.

While reading the book I tried to imagine that it was gotten up by a woman or party of women; but it sounds to me very much as if some man thought people would have more confidence in him if he called his farm "Woman's College Poultry Farm," or something like that. If you urge that these price lists contain a good deal of information, I reply that the catalogs sent out by the manufacturers of incubators contain a vast amount of information. The Cyphers catalog and others are really as valuable as some of the poultry-books that cost 50 cents or more. I leave it to you, friends. Is it the fair thing to put a price on a catalog, of things you have for sale, and call it a book?